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ABSTRACT

The basic reading course outlined in this student handbook emphasizes the decoding process. The contents consist of a letter-and-sound spelling chart and 87 course modules which are based on single-letter and letter-combination sounds. Many of the modules include exercises, and some contain reading material. (JM)

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BASIC READING INSTRUCTION
FOR STUDENTS IN AUTOMOTIVE OCCUPATIONS

Student's Workbook

U. S. Department of Health, Education, and Welfare
Elliot L. Richardson, Secretary

U. S. Office of Education
Sidney P. Marland, Commissioner

Division of Manpower Development and Training

CS 002 935

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LETTER AND SOUND SPELLING CHART

AS REFERENCE, AND FOR USE WITH AUDIO TAPE

Lesson		Example	Right Answer (✓)	Dictionary Symbols	Right Answer (✓)
1.	a	at	( )	ă (short a)	( )
2.	m	man	( )	m	( )
3.	n	no	( )	n	( )
4.	r	ran	( )	r	( )
5.	t	tar	( )	t	( )
6.	e	met	( )	ĕ (short e)	( )
7.	d	dent	( )	d	( )
8.	ed	dented	( )	ed	( )
9.	f	fan	( )	f	( )
10.	c	can	( )	k	( )
11.	ar	car	( )	är	( )
12.	s	sad	( )	s	( )
13.	i	trim	( )	ĭ (short i)	( )
14.	l	lad	( )	l	( )
15.	le	little	( )	'l	( )
16.	al	stall	( )	ôl	( )
17.	h	hand	( )	h	( )
18.	b	belt	( )	b	( )
19.	p	pin	( )	p	( )
20.	k	kit	( )	k	( )
21.	ck	rack	( )	k	( )

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Lesson		Example	Right Answer (✓)	Dictionary Symbols	Right Answer (✓)
22.	a	brake	( )	ā (long a)	( )
23.	e	Pete	( )	ē (long e)	( )
24.	i	tire	( )	ī (long i)	( )
25.	ee	steel	( )	ē	( )
26.	ea	rear	( )	ē	( )
27.	ch	chest	( )	ch	( )
28.	tch	patch	( )	ch	( )
29.	v	valve	( )	v	( )
30.	soft c	cider	( )	s	( )
31.	o	lot	( )	ŏ (short o)	( )
32.	u	pump	( )	ŭ (short u)	( )
		put	( )	o͝o	( )
33.	g	gas	( )	g	( )
34.	th	throttle	( )	th	( )
35.	sh	shine	( )	sh	( )
36.	ng	ring	( )	ng	( )
37.	nk	tank	( )	ngk	( )
38.	w	weld	( )	w	( )
39.	wa	water	( )	wô	( )
	aw	saw	( )	ô	( )
40.	j	jack	( )	j	( )
41.	soft g	engine	( )	j	( )
42.	dg	sludge	( )	j	( )

Page 3 - Letter and Sound Spelling Chart

Lesson		Example	Right Answer (✓)	Dictionary Symbols	Right Answer (✓)
43.	wh	wheel	( )	wh	( )
44.	ai	rain	( )	ā	( )
	air	hair	( )	âr	
45.	ie	dried	( )	ī	( )
46.	x	axle	( )	ks	( )
47.	o	pole	( )	ō (long o)	( )
48.	y	try	( )	ī	( )
		sunny	( )	ē	( )
		say	( )	ā	( )
49.	y	cylinder	( )	ĭ	( )
50.	oa	road	( )	ō	( )
51.	oo	tool	( )	o͞o	( )
	oo	book	( )	o͝o	( )
52.	ow	tow	( )	ō	( )
	ow	cow	( )	ou	( )
53.	tion	nation	( )	shun	( )
	sion	tension	( )	shun	( )
		vision	( )	zhun	( )
54.	u	unit	( )	ū (long u)	( )
		lube	( )	o͞o	( )
55.	ue	blue	( )	o͞o	( )
56.	ui	cruise	( )	o͞o	( )
57.	ew	screw	( )	o͞o	( )

Page 4 - Letter and Sound Spelling Chart

Lesson		Example	Right Answer (✓)	Dictionary Symbols	Right Answer (✓)
58.	ou	out	( )	ou	( )
59.	ar	car	( )	är	( )
	er, ar, ir, or, ur	rubber	( )	ẽr	( )
60.	eau	beauty	( )	ū	( )
		beau	( )	ō	( )
61.	qu	qualify	( )	kw	( )
62.	z	zone	( )	z	( )
63.	au	cause	( )	ô	( )
64.	oi	oil	( )	oi	( )
65.	oy	employ	( )	oi	( )
66.	silent g	designer	( )		
67.	silent h	exhaust	( )		
68.	silent gh	tight	( )		
69.	silent l	talk	( )		
70.	ey	they	( )	ā	( )
	ei	vein	( )	ā	( )
	eigh	weight	( )	ā	( )
71.	ea	heavy	( )	ĕ	( )
72.	ea	break	( )	ā	( )
	ear	bear	( )	âr	( )
73.	ear	learn	( )	ẽr	( )
		heart	( )	är	( )

Page 5 - Letter and Sound Spelling Chart

Lesson		Example	Right Answer (✓)	Dictionary Symbols	Right Answer (✓)
74.	ie	field	( )	ē	( )
75.	ei	ceiling	( )	ē	( )
76.	silent w	wrench	( )		
77.	silent k	knock	( )		
78.	silent b	debt	( )		
79.	gh	tough	( )	f	( )
	ph	Phillips 66	( )	f	( )
80.	ch	mechanic	( )	k	( )
		machine	( )	sh	( )
81.	su, ti, ci, xi, si	pressure	( )	sh	( )
	su	measure	( )	zh	( )
82.	gu	guard	( )	g	( )
83.	silent t	listen	( )		
84.	ain	certain	( )	ĭn	( )
85.	ine	masculine	( )	ĭn	( )
		gasoline	( )	ēn	( )
	ile	missile	( )	'l	( )
	ive	active	( )	ĭv	( )
86.	ui	circuit	( )	ĭ	( )
87.	sc	science	( )	s	( )

LESSON 1.0 A a (ă)

a

at

hat

cat

EXERCISES

1.____________________

2.____________________

3.____________________

4.____________________

LESSON 2.0 M m

am

ma

mat

1.____________________

2.____________________

3.____________________

LESSON 3.0 N n

an

am

man

1.____________________

2.____________________

3.____________________

LESSON 4.0 R r

ran arm

ram mar

1. A man ran.
2. Ann ran.
3. A ram ran.

4. are

1.____________________

2.____________________

3.____________________

LESSON 5.0 T t

EXERCISES

at rat mat tan tarn
ant tram rant rattan tar

1. A man ran at a rat.
2. Ann ran at a tan rat.
3. A tram ran at a tan rat.

1.________________________
2.________________________
3.________________________

5.1 ar

tar tarn mart tartan
art tartar tart

LESSON 6.0 E e ($\breve{e}$)

men ten met rent
rent net tent Ted

1. A tan tent
2. A net
3. Ten men
4. The rent

1.________________________
2.________________________
3.________________________
____

6.1 er

matter manner enter renter
tenner tanner tatter

6.2 the

TEN MEN

1. Ten men met at a tent.
2. The men are at the tent.
3. The men enter the tent.
4. A ram ran at the tent.
5. The men ran.

1.________________________
2.________________________
3.________________________
4.________________________
5.________________________

LESSON 7.0 D d

EXERCISES

dad
Dan
darn
tender
attendant

dam
den
dart
madder
deter

mad
end
Ed
mind
and

red
tend
demand
add
Ned

1. A mad ram 1.________________
2. A dam 2.________________
3. Dan and Ed 3.________________
4. A man and Ned 4.________________
5. The den 5.________________
6. Dan and Ed enter the red tent 6.________________
7. The men demand the rent 7.________________

LESSON 8.0 ed

entered
darned

mended
ended

demanded
added

darted
attended

1. Ted entered the den. 1.________________
2. A man mended the net. 2.________________
3. Ed and Dan entered the red tent. 3.________________
4. The men demanded the rent. 4.________________
5. Ann attended the ram. 5.________________
6. The attendant mended the dent. 6.________________
7. Ann mended the net and the tent. 7.________________
8. A rat darted at the man. 8.________________
9. Ann darned the tent. 9.________________
10. The renter entered the mart. 10.________________
11. Dan dented a tender tart. 11.________________
12. The attendant armed the man and Dan. 12.________________
13. The ant entered the tan tent. 13.________________
14. Ten men rented the mart. 14.________________

LESSON 9.0 F f

EXERCISES

fan
Fran
farmer
defend
fed
fret

far
farm
rafter
defended
draft
aft

fad
raft
Fred
fender
after
drafted

The raft--A farm--The fan--Fran and Dan--
The farmer and the ram--

1. Dan and the farmer fed the ram. 1.____________________
2. The draft entered the tent. 2.____________________
3. The draft fanned the farmer. 3.____________________
4. The farmer ran after the fat ram. 4.____________________
5. The attendant demanded the fan. 5.____________________
6. Fred drafted the man. 6.____________________
7. Fran dented a fender. A man mended the dented fender. 7.____________________
8. Dan fanned the mad attendant. 8.____________________
9. A fat man defended the farmer. 9.____________________
10. The farmer demanded the ram. The farmer ran after Fran. 10.____________________
11. The fan fed a draft at the fender. 11.____________________
12. The rafter dented the fender. After the rafter dented the fender, Fred and Dan mended the fender. 12.____________________

LESSON 10.0 C c

can
canter
cat
cam
craft
tact

act
cataract
acted
fact
camera

The camera-- The fat cat-- A fact--
A cat and a rat --An act--

EXERCISES

1. Ann acted. 1.________________
2. The cam acted dented. 2.________________
3. Fred fed the camera. 3.________________
4. Fran can dent the fender. Fran can't mend the fender. 4.________________
5. The fat **farmer** cantered after the mad ram. 5.
6. The cat cantered after the fat rat. 6.________________

LESSON 11.0 ar (är)

car
card
cart
Carter
carted
carter

1. A fat cat ran after a red cart. 1.________________
2. The rented car ran far. 2.________________
3. An art man dented a can. 3:________________
4. Dan and Fred dented the rented red car. 4.________________
5. Carter acted mad at Fred and Dan. 5.________________

LESSON 12.0 S s

sad
as
send
sent
sander
farms
dams
Sam
sat
mess
star
master
faster
sand
cast
dress
start
tester
dressed
fans
fast
sadder
stern
aster
starter
mass
mast
set
crest
fester
stem
arms
staff
nest
tress
amass
test
rams
stand
rest
caress
stammer
scarf

1. The man tests the dam. 1.________________
2. Dan farms. 2.________________
3. Fred tested Dan's starter fast. 3.________________
4. Dan's starter started. 4.________________
5. Sam and Fred rest after dinner. 5.________________

6. Sam ran fast after the cart. 6.____________________
7. The red car starts faster. 7.____________________
8. The sander acts fast. 8.____________________
9. The fan started a draft. 9.____________________
10. Sam ran as fast as Fred. 10.____________________
11. Dad sent Sam after a tart after dinner
Sam fed Ann the tart. 11.____________________
12. Sam tested the dented fender. Sam
mended the fender. Fred sanded the
mended fender. 12.____________________
____
13. The cat sat at the marten's nest. 13.____________________
14. Sam demanded asters at the aster stand
at the mart. 14.____________________

LESSON 13.0 I i (short i) ($\breve{i}$)

in
rim
miss
disc

it
sit
mitt
drift

is
Min
sift
risen

if
did
rift

tin
fin
rid
timid

sis
mist
fist
din

Tim
mint
sin
tint

fit
dim
trim
stiff

mister
Martin
discard

sister
mastic
canister

dinner
arctic
mariner

tennis
antarctic

missed
simmer
arisen

resist
tactic
dimmer

13.1 Modified i before r

sir
fir
stir

first
dirt
firm

EXERCISES

1. "The trim is sanded first, sir." 1.____________________
2. Fred tinted his canister red. 2.____________________
3. Fred fits the disc; it is firm. 3.____________________
4. The attendant discarded the fan. 4.____________________
5. The disc is cast first and sanded after.
It is sanded after it is cast. 5.____________________
6. Dan is a stern master; Dan is firm. 6.____________________
7. Ann stands in the dirt. 7.____________________
8. Ann stirs the dinner. 8.____________________

9. The mist has drifted. 9.____________________

10. Sam and Tim met at the tennis net. 10.____________________

11. Mars is a red disc. It is a star, a dim star. 11.____________________

12. A marten sits in the fir. It darts after its dinner. 12.____________________

13. The mast stands firm and stiff in the arctic mist. The mariner casts the mast, and it drifts astern in the mist. 13.____________________
____

14. Sam resists the draft and demands disarmament fast. Sister Ann demands disarmament faster.
____
____

LESSON 14.0 L 1

lad	Sal	Al	led	let	Lil	lit	lid	ill
land	lass	last	lard	clam	slam	alas	flat	slat
clan	less	slit	slid	slim	Slim	film	lend	fell
tell	sell	Nell	lest	melt	felt	lent	left	lint
list	till	mill	sill	fill	silt	dell	dill	drill

salad	slant	class	canal	cliff	blend	bland	smell	clift
still	flint	camel	Camel	cleft	metal	flirt	limit	linen

Lester	Clement	lantern	classic	clatter	teller	lintel
filter	calendar	distil	letter	slender	slanted	tilted
slammed	mallet	marlin	element	clinic	silted	lift

LESSON 15.0 le ('l)

saddle	candle	cattle	settle	rattle
middle	diddle	riddle	little	fiddle

15.1 From on

LESSON 16.0 a with l -- al as in all (ôl)

all	salt	malt
fall	small	fallen
tall	alter	scald
call	stall	false

EXERCISES

1. Slim slammed the mallet on the metal. 1. ____________________

2. Al fed the camera a film. 2. ____________________

3. The man is at the drill after dinner. 3. ____________________

4. The metal drill fell in the dirt. 4. ____________________

5. The small car is a classic. 5. ____________________

6. Lester fills the tin canister. 6. ____________________

7. Fred sets a metal drill on the red can. 7. ____________________

8. Martin slid the pin in the small disc. 8. ____________________

9. Slim filters the elements in the tin canister. 9. ____________________

10. Alfred fills the metal distiller. 10. ____________________

11. The teller slammed the false metal disc at Al. 11. ____________________

12. The man tilted the filter and felt the dent on its rim. 12. ____________________

13. Sam discards the dented discs and rims. 13. ____________________

14. Lester melts salt on the tarmac. 14. ____________________

15. The attendant stirs melted tar in a tin can. 15. ____________________

16. If the cam is flat, Slim can sand it fast. 16. ____________________

17. Slim calls Lester, the attendant, at last. 17. ____________________

18. The calendar in the den is tilted a little. 18. ____________________

19. Let the man fall on the mat. 19. ____________________

20. Al sets the lantern on the sill. 20. ____________________

21. Slim lit a candle in the mill. 21. ____________________

22. The man sells Slim the clams. 22. ____________________

23. The man felt sad; he had fallen from a camel. 23. ____________________

24. The tall farmer sells lard. 24. ____________________

25. The fat melts fast. 25. ____________________

26. The tall man tells Fred, "Fasten the lantern at the mast of the raft." 26. ____________________

27. The raft drifts in the mist in the canal. A master mariner directs traffic on the canal. The raft passes a fan seller at the last stand. 27. ____________________

28. Al fell from a tall cliff and landed flat on the sand. Al felt sad. 28. ____________________

LESSON 17.0 H h

hat
hem
hill
hall
has
hid
harden
herd
handle
ham
hit
had
hilt
hell
hint
her
hand
Helen
helmet
hectic
hers
held
Hilda
inherit
herself
his
halt
Hester
hermit
himself
hen
harm
Hal
handed
hammer

17.1 to with for

EXERCISES

1. The man has a tan hat in his hand. 1.____________________

2. Hal fed the clams to his sister Helen for dinner. 2.____________________

3. Sam has a camera. His pal Fred sent him the camera. His film is in a flat tin can. It is an instant camera. 3.____________________

4. The handle on the mallet is trimmed and slanted to fit the hand. 4.____________________

5. Hilda has her calendar filled with lists of tennis men for her tennis class. 5.____________________

6. Hal trimmed the handle on his mallet. He trimmed it to fit his hand. After he had trimmed it, it felt slender in his fist. He hammered a disc flat with his mallet. 6.____________________

____

7. Sam has a tin helmet. It resists the fall of a hammer. It is hard if a hammer falls on it. 7.____________________

____

8. Sam slammed his hammer at the tar. It melted as the drill drilled it. The drill clattered. Sam smelled the tar. 8.____________________

____

9. A left-handed man had ham for dinner. He lifted the ham with his left hand. It filled him. His left hand did small harm to the ham. 9.____________________

____

10. The camel man left his tent to call for his dinner. 10.____________________

11. Hal inherited a Brass metal hammer from his pal Slim. 11____________________

12. A herd of tan camels ran past the red tent faster and faster. 12.____________________

17.2 A HAM DINNER

Fred the farmer sets a ham on the farm stand. The ham is in a flat tin can. Fred intends to sell the ham.

Helen demands the ham for her dinner. Fred sells Helen the ham. Helen has Hamm's for her man, Lester, with the ham.

Helen starts the ham in its tin and tends it till it is fit for dinner, for herself and her man, Lester.

With Lester, Helen has salad and ham for dinner and little tarts for dessert. The ham is tender. Helen fills herself with the ham. Lester has ham and Hamm's. Lester passes the salad to Helen. The little tarts are for dessert, after the salad.

After her dinner, Helen sits and rests. Lester still has his Hamm's. He sits at the TV set with his Hamm's in his hand.

EXERCISES

1. Fred the farmer sets a __________ on the farm stand.
2. Fred intends to sell the __________.
3. __________ demands the ham for dinner.
4. Helen has ____________ for her man.
   (beer)
5. Lester sits at the TV set with a Hamm's in his __________.

LESSON 18.0 B b

bad
bar
bit
barn
Bill
best
crib
brand
barred
blaster
Arab

ban
bet
bib
bran
bill
bend
brim
cabin
banana
babbitt
Arabic

rib
Ben
crab
bail
bent
bled
bird
blast
blister
binder
scrabble

cab
bed
slab
band
Bert
bell
brass
banner
barber
fabric
arable

bat
bin
bass
Brad
Bart
Bess
habit
bitter
barrel
bitten
assemble

nab
bid
brat
brad
brim
belt
bless
better
barren
cabinet
blab

EXERCISES

1. Dan bats the ball best. 1.____________________

2. Ben handed the bananas to his sister. 2.____________________

3. The cat sits on the brass bed. 3.____________________

4. Fred sells a red belt to Slim. 4.____________________

5. Bert has a bad blister on his hand. 5.____________________

6. Bill has tennis balls in his cabinet. 6.____________________

7. Sam ran to the cabin for his best hammer. 7.____________________

8. Ben sat on his bed to rest. 8.____________________

9. Bill bent the brass bar with his hands. 9.____________________

10. Fran has a red banner on her cabin.
In the cabin is a red barrel. 10.____________________

11. Jim's red car is on the lift, and Albert
sands a blister on the fender. 11.____________________

12. Ben crabbed at his attendant. The
attendant crabbed at his pal Ben. 12.____________________

13. Brad's brat blasted a banana at the cabin. 13.____________________

14. The batter belted the ball to the barn. 14.____________________

15. An ant in the cabin had entered the bird's
nest on the lintel. 15.____________________

16. Babbitt metal melts faster in the brass
canister. 16.____________________

17. Bart's banner is on a tall staff. 17.____________________

18. Bill set the drill in the slit to stand firm. ____________________
He set the bit in the drill and started to
drill with it. 18.____________________

19. Ben can bend a metal bar in his left hand. 19.____________________

20. Bart belted the bent rim with his brass
hammer. 20.____________________

21. The linen fabric on the cabinet blends with
the trim on the classic car. 21.____________________

22. He filled the barrel to the brim with sand
and sanded the tarmac from it. 22.____________________

23. An Arab has little arable land. 23.____________________

24. The lantern clattered on the metal sill as
it fell from the fender. 24.____________________

FRED THE BARTENDER

Fred, the bartender, sat at his bar. Fred had a "Bud" with his pal Sam. After, Fred sat in Sam's car. Sam had a tin hat. It fell on a tin can in the car with a clatter. Fred had little flat metal discs. He filled Sam's hat with the flat metal discs. As Sam lifted his hat, the discs clattered in the car. Sam called for a halt of the harassment. He had a hammer to hit Fred. Fred ended his ham act. He and Sam had a "Bud" in the bar.

LESSON 19.0 P p

pat	pan	pad	pal	map	sip	pad
pep	pin	rap	lap	sap	tap	rap
cap	apt	pen	pit	lip	tip	rip
dip	hip	par				
pass	pram	slap	trap	camp	clap	trap
plan	help	pill	flip	slip	clip	trip
past	snap	hasp	ramp	spit	pest	spin
snip	flap	part	span	pant	Spam	rasp
stamp	cramp	crimp	clamp	apple	clasp	press
slept	crisp	blimp	spill	pants	pedal	apart
panic	strap	spent	spend	strip	plant	rapid
paddle	Pamela	happen	carpet	nipple	temple	tappet
temper	parted	dipper	hamper	paper	splint	pillar
capital	carpenter	handicap	peppermint	snapper	perhaps	plastered
trapper	trapped	plaster	permanent	spindle	rapid	scrapple
plastic	flipper	plasterer	partner	spinner	slipper	scrap-metal

19.1 of up

EXERCISES

1. The little red car is up on the ramp. 1.____________________

2. Jim's partner was hit on the temple with an apple. 2. ________________

3. A man is apt to fall to the carpet after he has slipped on a banana. 3. ________________

4. In the cabinet is a brass hammer and a plastic clamp. 4. ________________

5. The attendant fitted the brass nipple on the spindle. 5. ________________

6. Sam trimmed the hard metal with a tempered rasp. 6. ________________

7. He split the apple apart with a strip of scrap metal. 7. ________________

8. He patted her pet cat. 8. ________________

9. The carpenter held a printed card in his hand. It had tall red letters. 9. ________________

10. Pat had an aspirin tablet after he tripped on the ramp and fell. 10. ________________

11. The parts man sells parts to the helper. 11. ________________

12. The partner's helper had a metal strap and a hasp to fasten his cabinet. 12. ________________

13. He hit the panic bar and ran past the ramp at a fast clip. 13. ________________

LESSON 20.0 K k

kit	Kim	kid	ask	ark	kin	dark
desk	kill	kiss	mask	task	bark	kept
skin	mark	lark	milk	silk	kelp	market
clerk	kilter	kindle	Kansas	kettle	park	ankle

1. Mac marked the paddle with red letters. 1. ________________

2. His sister asked him for the brass kettle. 2. ________________

3. He remarked, "It is a hard task to lift a brass kettle." 3. ________________

4. Sal helped him lift the kettle of milk. 4. ________________

5. Skimmed milk can stick to a kettle. 5. ________________

6. Marc and Mark marked cans in the market. 6. ________________

THE DARK RED CAR FROM DENMARK

The dark red car is sent to America from Denmark. It has marks on its fenders from the plaster spilled on it. A mariner spit on it, and a master carpenter bent and dented its left fender with his hammer. The carpenter had a blister on his hand and his hammer slipped as he fastened a plank to the ramp for the car. He skinned his ankle on the car's left fin as he crept on his ladder. All in all, the carpenter had a bad spell with the little dark red car. As the car departed, the carpenter hit it a last rap with his hammer and stamped a mark on its carpet. The carpenter had a bad "temper!"

21.0 ck

EXERCISES

tack	lack	sack	Mack	rack	back
pack	peck	neck	deck	pick	lick
tick	Dick	sick	kick	hack	dipstick
slack	attack	racket	packet	stack	smack
track	clack	black	crack	click	trick
flick	brick	stick	sickle	snack	bracket

1. The cat licked her black kitten. 1.__________________

2. Kim set the milk on the barrel. Mack kicked the barrel and spilled the milk. 2.__________________

3. Kim asked Pat to help him attack the task. 3.__________________

4. Jim helped his sister after she had skidded and fallen on the rapid transit tracks. She slipped on the tracks after she had stepped on a black brick. 4.__________________

____

____

5. The clerk is from Kansas. 5.__________________

6. The small black car is assembled in Flint. 6.__________________

7. Patrick kindled the sticks with a splinter of fir. 7.__________________

8. The harm to the plastic bracket is permanent. 8.__________________

9. The dipstick tells if the car is filled for the trip. 9.__________________

10. He set the panel up on the fender. It bent the fender. The panel fell. 10.__________________

LESSON 22.0 a (with unsounded e -- long a) (ā)

ăt - āte
răt - rāte
măt - māte
tăck - tāke
băck - bāke

bar	bare
far	fare
mar	mare
car	care
par	pare

pane
take
make
sake
fake
bake
same
tape
made
hate
fade
mate
pale
rate
ate
cane
came

lane
lake
rake
safe
blame
paste
crate
name
crane
case
stale
plane
lame
plate
date
brake
trade

state
late
frame
slate
flame
sale
male
base
flake
case
taste
grade
paper

MR. LANE'S RACKET

Mr. Lane the brake fitter and disc trimmer had a racket at the market. Mr. Lane fitted brakes and trimmed discs till dark. After dark he asked all the men at the market to let him take care of the cars to keep them safe. He had flares set on the tarmac. Mr. Lane insisted the flames of the flares kept bad men from the cars.

The tradesmen in the market hated the flares. The flares made dirt and black marks on the parked cars of the men in the market. The men blamed the tradesmen for the dirt on the cars. The Tradesmen blamed Mr. Lane and his flares. The tradesmen asked Mr. Lane to sit on a stack of crates and care for the parked cars -- and take his flares back. Later, the men and the tradesmen hid Mr. Lane's flares and Mr. Lane left the market and the cars. The cars fared better after Mr. Lane left -- less dirt and black marks.

Mr. Lane still fits brakes and trims discs till dark. After dark he is less of a racket man. He sits in a bar with a tankard of ale and a plate of clams. He is less of a rascal, less of a racket man. The men at the market are slick and safe. It is simple to rid a market of a racket man, with a smart man to plan a trick. A smart man is hard to find.

LESSON 23.0 e (long e) ($\bar{e}$)

Pete
compete
fete
peke
theme
concrete
delete
complete
replete
deplete
Crete
discreet
here
mere

23.1 this that then them than

1. Complete the paper on Crete.
2. Pete plans to delete the concrete deck.
3. To compete with Pete, Kate is discreet.

EXERCISES

LESSON 24.0 i long i ($\bar{i}$)

kit	-	kite	mill	-	mile	lick	-	like
bit	-	bite	Sid	-	side	Dick	-	dike
pin	-	pine	prim	-	prime	crimp	-	crime
rid	-	ride	dim	-	dime	mit	-	mite
pip	-	pipe	slim	-	slime	sit	-	site

hire
retire
spine
mine
hide
lime
hike

tire
desire
time
smile
spike
nine
fine

fire
conspire
file
spite
tine
Mike
tile

mire
mile
line
side
pile
tide
strike

find
grind
inspire
pike
reminder
mind
sire

kind
bind
attire
mica
rind
binder
admire

finder
like
ripe
mite
stile
diner
bride

24.1 Pennies and Dimes

Ten pennies make a dime. Nine dimes is less than ten dimes. It is a dime less than ten dimes. A penny is the smallest metal that can be spent.

Find a dime in the mire.

On time is in time.

Time is for hire.

To kill time is a crime.

The tire slides in the mire.

A stale pipe bites hard.

Dale makes a mark on a slate. Pete marks on Dale's mark.

Is mica in Formica? All the mica in Formica is nil mica.

This is like a list of riddles: It takes a pile of dimes to hire a plane, to tile a diner, to attend a sale, to attire a bridge, to retire a helper, to crate a safe, to hide a mine, to line a pike, to pile a dike, or to grind a file.

24.2 DAN IN THE DARK

A man named Dan cared for the animals on a farm. He gave the animals dinner after dark. After the animals had fed, Dan sat and ate with a lantern in the dark barn. An apple and a tin of milk made all of his little dinner.

Then late, Dan ran to a stall and saddled the red mare. Dan sat in the saddle and the mare ran into the dark. Dan sat fast and felt safe as the mare cantered on in the darkness.

He planned to ride the mare to a cabin at a lake a mile distant. Dan slept in the cabin. He kept a line, a stick, and a net at the cabin. Dan liked to take bass from the lake.

Dan rests after his dark ride. Later he takes his lantern, his line, and his net to the side of the lake.

Dan lands a bass.

Dan prepares the bass for his dinner. The flames of his fire bake the bass. As it bakes, Dan bastes it in the pan. Then he tastes the bass.

He has a better dinner this time than he had with the apple and the tin of milk in the dark barn with the animals.

EXERCISES

LESSON 25.0 ee as long e (ē)

fed - feed
met - meet
fell - feel
bet - beet
red - reed
Ned - need
Ken - keen
step - steep

bee
seem
steed
beef
reef
free
peek
fifteen
needle

see
seed
skeet
meek
reel
fleet
steel
deeper
bleed

tee
seek
flee
deed
reed
speed
deep
feeler
steep

fee
sleet
deer
keel
tree
keep
feet
keeper
beeper

25.1 not, you, these, and they

25.2 IF YOU SPEED, SPEED FAST

Pete feeds the tank of his Delta 88. Mike has a Firebird that is smaller than Pete's Delta 88. Al has a Simca that is the smallest. Al bleeds the brakes of his Simca. Mike feeds the tank of his Firebird.

The men make a bet on the speeds of the cars. Pete insists that the Delta 88 is the fastest. Mike bets that the Firebird is the Fastest. Al insists that his Simca takes less feed per mile. He can not insist that it speeds as fast as the American cars.

They make a bet. For the bet, Al starts first. The Delta and the Firebird start a mile behind Al. They speed on the pike. They all speed fast.

Mike and Pete are past Al. They are first.

A siren!

They are arrested. Al in his Simca is arrested first. He is far behind the American cars. Al is mad to be arrested first, for less speed. Mike is arrested after Al. Pete in his Delta 88 is fifteen miles past as Mike takes his ticket. Al is sad. Mike is sadder than Al.

Alas for Mike and Al. They are fined $25.00. Pete is free, this time.

EXERCISES

1. Pete had a________________.
2. Mike had a________________.
3. The smallest was the________________.
4. Al had a________________.
5. Mike and Pete bet on the______________of the cars.
6. Al insisted that his______________takes less__________per mile.
7. For the bet, Al started____________.

8. Mike and Pete started a ______________ behind Al.
9. Al is ________ first.
10. Pete was ___________ miles past as Mike takes a ticket.
11. ________ and ________ are fined.
12. Pete is _______.

25.3 The Beet Farm

Kate takes little Sam to a beet farm. He sees all the beets.

The beets from the farm are not sent to a market for sale.

These beets are sent to a beet plant.

Can you tell the kind of beets that these beets are?

They are sugar beets. Sugar is made from sugar cane, too. It makes the best cakes for dessert.

Sugar melts in a flame. In a pan on a flame it melts and makes caramel.

Tame deer are after the sugar beets. They want to nibble them.

Kate tells the deer to be at the end of the farm, later, for a fresh basket of sugar beets.

25.4 Find the Long a, i, and e

1. The parts salesman needs paper and pen to list his sales.
2. The attendant runs nine miles to the diner for his dinner. He is tired!
3. The attendant reminds his sister to set a lantern, after dark, on the side of the hill beside the cabin. He plans to be back late--after dark--and he likes to be able to find the cabin and not fall into the lake.

LESSON 26.0 ea -- as long e (ē)

peak
tea
sea
beat
team
beak
tease
heat
bead
steal

peal
seat
beam
read
mean
leaf
steam
lean
treat
deal

eat
meat
real
least
seam
feast
east
heal
pleat
dealer

ease
repeat
neat
lead
leap
beast
pea
cleat
lease
streak

stream
bean
feat
retreat
defeat
please
seal
leak
sealed-beam
crease

ear
tear
fear
rear
near
hear
clear
appear
dear
beard

EXERCISES

1. The bead of the tire is near the rim. 1. ____________________

2. The Delta 88 has a wide seat. It is finished with care. 2. ____________________

3. The salesman fears a mean beast. 3. ____________________

4. The dealer sits on the rear seat. He fits the belt. 4. ____________________

5. The helper thins the clear finish for the rear deck of the Cadillac. 5. ____________________

6. The heat of the flame is near the rear fender. 6. ____________________

7. The dealer inhales steam from a heated pan. It seems to make him feel better. 7. ____________________

8. The helper installs a seal-beam lamp in the Electra. 8. ____________________

9. Neal, the spare parts dealer, has nine cases of anti-leak in the cabinet. 9. ____________________

10. Fred adds cream to his drink. He eats a plate of beans and an apple tart. For his snack he had franks and ripe grapes. Fred is not fat; he is lean. 10. ____________________

11. Al came from Trinidad, far, far in the Caribbean Sea. 11. ____________________

12. The Antilles are in the Carribean Sea, to the east. East of them is the Atlantic. On the side of the Antilles nearest America is the Caribbean Sea. 12. ____________________

13. The pattern-maker from Flint came to Indiana to make plans for a fast car. 13. ____________________

14. Alfred treated his helper to a fresh pineapple tart and a tall Pepsi.

14. ____________________

15. Bill defeated Al with a leap of nineteen feet at the track meet.

15. ____________________

16. Glass can be annealed to make it less liable to crack; it is annealed, that is tempered, with heat.

____
16. ____________________

LESSON 27.0 ch

cheese
chart
chapter
checker
chill
pinch
chest
attach
chatter
chess
merchant
flinch
charm
rachet
cheat
Chester
merchandise
clinch
check
champ
cheek
China
chap
channel
cheer
chin
Chinese
chase
chapel
cheap
chip
inch

EXERCISES

1. Chester keeps his hammer in a tin chest.

1. ____________________

2. The men cheer as the Firebird chases the Delta 88. Pete is still champ.

2. ____________________

3. A rachet makes it easier to fasten a rear fender at a small seam behind the rear tire, that is near the tank.

____
3. ____________________

4. A merchant sells merchandise. He sells a pinch of tea and a packet of lard. He takes a check from Pete.

____
4. ____________________

5. Chinese merchants and traders sell tea to America. Can American dealers sell cars and tires to China? Can they sell parts to China? It is not simple for American dealers to sell cars, parts, and tires to China.

5. ____________________
____
____

6. Americans prefer to drink tea that arrives from near India, not from China. Trade with China is restricted. Dealers cannot sell arms to China.

6. ____________________
____

7. A hatchet can act as a hammer. A hammer cannot act as a hatchet.

7. ____________________

8. A hatchet with a blade on each side cannot act as a hammer. Perhaps it can if you hit with the flat side.

8. ____________________
____

9. Chester attached a chart, that tells all the makes and brands of cheese, to the side of his cabinet. ____________ ____________

10. Chester's nickname is Chet. He likes to be called Chet. As a little kid he had the name Chip. ____________ ____________

LESSON 28.0 tch

catch	match	patch	batch	latch	hatch	scratch
hatchet	satchel	etch	itch	pitch	pitcher	ratchet

EXERCISES

1. The tire __________ is in a cabinet.
2. The helper strikes a __________ to make the __________ stick.
3. He hears the __________ as he strikes the match.
4. Chickens ______ the dirt.

LESSON 29.0 V v

van	vest	vat	vent	even	Dave
David	rivet	dive	drive	driver	vise
save	cave	vine	vane	veal	five
silver	leave	bevel	never	Avis	valve
velvet	river	several	sliver	arrive	arrival
Maverick	anvil	travel	live	liver	deliver
carve	active	rival	flivver	vacate	serve
vertical	ventilate	vandalism	vanilla	effective	defective
detective	activate	vehicle	avalanche		
saliva	seven	invade	derive	rave	vital
trivial	marvel	ravel	valid	vale	evict
venison	fever	fiver	verse	adverse	cleaver
heave	reveal	valet	avert	vast	evade
eleven	nerve	victim	prevent	veteran	clever

29.1 but and have

EXERCISES

1. The driver of the van timed his arrival to meet the dealer. 1. ____________________

2. The sand in the drive is raked and kept clean. 2. ____________________

3. The attendant never travels in a silver Maverick. 3. ____________________

4. **The back seat of the detective's car is trimmed in red velvet.** 4. ____________________

5. You have to patch the tire on that red Maverick--the left rear tire. 5. ____________________

6. He drives the rivets in and clinches them with his hammer. 6. ____________________

7. He asked the salesman to vacate the premises. 7. ____________________

8. The Dart is smaller than the Impala, and it has less speed. It takes less to get parts for the Dart. ____________________ 8. ____________________

9. The valves in the Rambler have been cleaned and re-fitted. 9. ____________________

10. He delivered the pack of cards several times, but David did not appear to let him enter the cabin. ____________________ 10. ____________________

11. The first draft of his letter is in the vertical file. It is hidden behind a Manila file. ____________________ 11. ____________________

12. It is simple to activate the valve that starts the heater. 12. ____________________

13. The driver of the vehicle had to leave his Maverick by a tree at the side of the lane. He ran. He seemed to hear an avalanche up the hill to the east. ____________________ 13. ____________________

14. The crack in the veneer is not visible. 14. ____________________

LESSON 30.0 soft c (s)

ice
mice
de-icer
service
cider

decibel
farce
accident

nice
acid
advance
cent
fleece

valance
acceptance
center

rice
device
advice
cancer
Anacin

avarice
resistance
place

vice
circle
cinder
rancid
prance

prince
distance
replace

dice
dance
lance
decent
peace

princess
accept
face

lice
chance
mince
recess
civil

recessed
balance
pace
race

30.1 EXERCISES

1. Please leave the cider on the bench. 1. ____________

2. Ice cream has a nice taste. 2. ____________

3. The slice of veal is served on a silver platter. 3. ____________

4. He can have the minced chicken liver for dinner. 4. ____________

5. Even the valves are clean in this slick car. 5. ____________

6. The ice chest is ventilated with a small silent fan. 6. ____________

7. A traffic circle directs cars to circle to the left. 7. ____________

8. They have a different kind of traffic circle in France. 8. ____________

9. The dealer made an advance to the helper. The helper had kept the place nice and clean.
____
9. ____________

10. If the salesman has lace on his shirt, can he sell a Mercedes to the princess? 10. ____________

11. The men get the silver medal for the best service. They came in first in the class.
____
11. ____________

12. A kind of de-icer is made in the rear pane of a fine car. It is made of delicate filaments inside the pane that heat it and make the ice melt. It is the resistance that makes the filaments heat as the amperes pass into them.
____
____
____
12. ____________

13. The items that stick from the dash on a 1970 car are recessed to prevent harm to a man that is slammed onto them in an accident, at the time of the impact.

13. ____________________

____

____

14. A slice of ham left in the seat of the car became rancid and smelled bad.

14. ____________________

15. The first trace of vandalism activates an alarm inside the car and calls help to the vehicle. If the help arrives in time, the vandal can be taken in the act.

____

____

15. ____________________

16. The attendant snatched the Anacin and plastic tapes from the cabinet and ran to help the men in the accident.

____

16. ____________________

17. Vertical vents at the side ventilate the vehicle after a lever inside, on the dash, is pressed.

____

17. ____________________

18. A red banner with black letters dances in the center of the service area of Fred's Place. It tells you to take a brand of fan belts that are for sale at Fred's Place. The diner near Fred's sells pancakes to the drivers and travelers that park near it and are serviced at Fred's.

18. ____________________

____

____

____

LESSON 31.0 short o (ŏ and ô)

1	2	3	4	5	6
lot	pot	tot	rot	hot	not
cot	dot	on	Don	bond	pond
top	mop	cop	hop	stop	drop
crop	pop	prop	adopt	cotter	contest
strop	block	flock	dock	lock	rock
sock	nod	solid	dollar	mock	cod
trot	prod	slot	spot	stock	chop
copper	solvent	contact	collar	socket	closet
pocket	rocker	compact	bottom	concave	odd
comic	atomic	Bob	Robert	clod	bobsled
bonnet	bock beer	concoct	common	bombard	cockpit
botch	constant	conceal	clock	concrete	content
posse	combat	possible	ostrich	operate	convert
contrast	convict	contract	contest	observe	dacron
mascot	converse	monster	model	comment	blossom
conflict	convert	responsible			

31.1 Difficult short o words

compensate
contradict
positive
concentrate
considerable
opposite
accomplice
confidence
cobble
confident
prompt

31.2 The short o as the aw sound

off
offer
soft
coffee
office
cross
across

31.3 Before an r the short o is close to the aw sound or close to the long o sound.

for
Ford
orator
cord
mortal
nor
or
port
orchard
important
fork
sport
portal
cordovan
importance
horn
form
pork
cornet
Corsica
cork
born
coral
correct
Doris
lord
torn
border
boric acid
orbit

31.4 The o sound spelled with an unsounded final e

ore
horse
bore
tore
core
sore
snore
before

31.5 The o spells an uh sound

ton
comfort
concern
condense
second
oven
collect
consent
compress
develop
cover
compare
confess
compass
personal
hover
compete
confirm
conspire
command
atom
conserve
piston
cotton
recommend
color
compile
coveralls
carton
compressor

31.6 Words with some irregularity of spelling, such as the short o with the unsounded e.

some
love
come
sometime
become
above

31.7 The er sound spelled or.

actor
factor
record
favor
flavor
director
armor
assessor
harbor
compressor
color
doctor

EXERCISES

1. The child ran to the pond.

1. ____________________

2. Fred made first place and Don made second in the contest for the electric alarm clocks.

____

2. ____________________

3. All the men in the office asked to operate the electric drill.

3. ____________________

4. Jim eats broccoli and cheese for dinner.

4. ____________________

5. The positive terminal has been cleaned.

5. ____________________

6. You must clean the positive terminal and drive the cable onto it with sharp taps of a hammer.

____

6. ____________________

7. He has a dacron skirt for the baton spinner and a copper-plated collar for the mascot.

____

7. ____________________

8. The cellar is lined with concrete blocks.

8. ____________________

9. Fred stropped his blade on a strip of hide.

9. ____________________

10. He spent five dollars on pork chops for eleven men.

10. ____________________

11. The raft hit the dock with considerable force.

11. ____________________

12. Bob dreams that he can discover a cheap solvent for copper.

12. ____________________

13. Ten horses run on the hill above the orchard.

13. ____________________

14. Olive's office has an electric coffee maker. 14. ____________________

15. Robert treated the blister with boric acid. 15. ____________________

16. A little corporal named Napoleon came from Corsica. 16. ____________________

17. Did you ever see an ostrich eat a pork chop? 17. ____________________

18. The atomic reactor makes lots of heat and little dirt. 18. ____________________

19. The dealer is confident that he can sell a second-hand Ford to Doris. 19. ____________________

20. Don's cornet has copper valves and stops. 20. ____________________

21. A cornet is sometimes called a horn. 21. ____________________

22. Bill and Doris have a red Falcon compact. 22. ____________________

23. They keep maps and matches in the pockets of the Corvette. 23. ____________________

24. Al pressed the lever to start the compressor. 24. ____________________

25. The helper in cotton coveralls and red socks has a carton of bock beer. 25. ____________________

26. The orator made an important speech. 26. ____________________

27. Bill hid the contract in the bottom of his parts chest. 27. ____________________

28. He tossed the clock in the closet and locked it with care. 28. ____________________

29. The flavor of ice cream can be terrible if the compressor leaks. 29. ____________________

30. The convict and his accomplice escaped by the port of Boston. 30. ____________________

31. Alfred stretched a cord across the entrance to the drive. 31. ____________________

32. Even a careful driver can be responsible for an accident, but seldom. It happens more times to a reckless driver. 32. ____________________

____

33. He lives on the second block of Donner Street, close to the ice cream parlor. 33. ______________

34. Lester discovered that cotton, silk, and linen, and also dacron, orlon, and fiber materials resist time, dirt, mice, insects, children, and the cleaners in a different manner for each.
____
____
34. ______________

35. A paper filter helps make a better sort of coffee. 35. ______________

36. A ripe apricot makes a nice snack. It is even better topped with ice cream. If you add hot melted chocolate on top, you have a real rich treat. This has to be eaten with some care if you are not to become fat.
____
____
36. ______________

Morton's Electrical Problem

A man named Morton cannot start his Falcon compact. He cannot tell that the electrical part of his car is not O.K. He presses the starter and silence happens. Morton then checks the electric terminals and sees his problem. The cable to the positive terminal is off. Morton has left his service kit behind, at his apartment. He replaces the cable end onto the terminal and makes it fast with a little spike that he drives in with a flat tire iron. It is all he can find to hit the little spike with. Then his car starts after he kicks the starter. Morton drives to Fred's Place for proper service to his cable and terminal. At Fred's, the helper socks Morton's little spike off with his hammer. Then he makes a proper contact and with his socket makes the cable end fast. He asks Morton for a dollar. Morton is pleased to hand a dollar and a half to the helper. He shakes the helper's hand and promises himself to remember to take his service kit with him after this incident.

LESSON 32.0 Short u (ŭ)

cup
suck
crust
undid
upon
muck
duck
support
dun
rust
tunnel
lunch
supper
stub
butter
punish

but
nub
luck
undo
crunch
Dutch
lump
drum
minimum
hub
rut
sub
blunt
rush
mustard
conduct

cut
muss
bunch
mud
much
uncle
lust
fun
nun
must
customer
summer
runt
bunt
stun
number

hut
hump
hunch
Bufferin
bud
clutch
buck
run
puddle
bust
support
Buster
punt
punk
strut
putt

nut
bump
bumper
hunt
bundle
pump
funnel
bun
circus
punch
slump
cluster
punter
tumbler
mutt
truck

such
fuss
under
hunter
destruct
sump
conductor
sun
dust
slum
plump
custard
struck
Bud
crutch
stuck

32.1 Short u as in put (o͝o)

put
pull
bull
bush
Butch
push
butcher
full

32.2 their and by

EXERCISES

1. He put a cotter pin in with care and bent it over the nut.

1. ____________________

2. If you cut a slice of lemon with a carbon steel blade and leave it for a time, it rusts. Then you must clean it with some care.

2. ____________________

____

3. Butch Fitts sent the best veal chops to his favorite customers.

3. ____________________

4. The driver pushed the clutch and the brake in hard to stop the Mack truck.

4. ____________________

5. The interurban conductor punched tickets by the hundreds and hundreds until his hand became tired.

5. ____________________

____

6. Dutch cheese comes in a dark red plastic cover. The cheese tastes sharp but nice.

6. ____________________

____

7. He ran the truck into the tunnel. The tunnel made a fast turn, but he turned fast and kept his truck on the correct side of the line.

7. ____________________

____

8. The punter from Tennessee kicked the ball a hundred feet up. 8. ____________________

9. Silver conducts heat fast. 9. ____________________

10. The hunter ran into the circus after his lost rabbit and duck. 10. ____________________

11. The car stopped. It surprised Ken to find rust in the carburetor of a 1970 truck. 11. ____________________

12. The butcher hid his lunch under the bumper of his Sunbeam Talbot. He intended to hide it from kids that steal. 12. ____________________

13. He sat in the sun until he burned to a deep purple. 13. ____________________

14. The drummer supported his drums on a rubber-covered stand. 14. ____________________

15. The race driver turned his Falcon fast and the tires screeched and burned on the hard concrete surface. 15. ____________________

16. The skater hurt his ankle and had to support himself with a crutch. 16. ____________________

17. The carbon steel drill did not cut into the pre-stressed concrete. It became dull fast. 17. ____________________

32.3 A Desert Hunt

In the desert, the men survived on canned meat and Pepsi. The sun beat hard on their backs as they crept over the hot sand. They suffered from heat, and thirst. They hoped for darkness, and they attempted to get to the hills in the distance. They planned to make it to the green hills in fifteen minutes, but they did not see the endless stretches of sand before the hills. They had been blinded by the sun. They had been tired by travel. After dark, as they slept, they dreamed of survival and of their return to their peaceful summer cabins beside the river. The hunt for silver had become a terrible mistake. But after the sun had risen, they had to lurch on further into the terrible heat of the desert. Before nine-o'clock they started to feel sick and to fall on the scorched sands. Fifteen minutes later a truck picked them all up and they returned to camp alive.

LESSON 33.0 hard g

gas
gate
magnet
slug
lug
toggle
negative

nag
keg
game
drug
gutter
gut
regret
gust
rug
peg

tag
grade
grit
bag
green
grease gun
hamburger

hog
leg
grate
garden
glitter
legal
grasp
greed
gear
big

rag
grind
flag
gallon
clog
bug
gap

drag
dig
grader
Gus
gun
grape
gale
grant
spark plug
tug

glass
grinder
give
gasket
clogged
gasoline
begin

get
grin
glide
dagger
gone
Gabe
disgusted
grand
log
got

rig
grease
gave
grid
gutted muffler
neglect
began

sag
glad
mug
dragon
Grace
brag
disgrace
governor
begun
disgraceful

EXERCISES

1. Grit in the grease gun can clog the gears. 1. ______________________

2. Gus ran his horse at a gallop. 2. ______________________

3. The steel blade of the dagger glittered in the sun. 3. ______________________

4. Can you travel from Concord to Boston on a gallon of the best gasoline? 4. ______________________

5. Gus kept several dimes in a purse. He put a magnet in the purse and stuck it under the frame of his Delta 88. 5. ______________________
____

6. Is it legal to drive across the state line with a case of rum in the car? 6. ______________________

7. The asbestos in the copper-covered gasket seemed to be clogged with carbon. 7. ______________________

8. The best grade of cup grease makes the motor start fast and perform like a charm. 8. ______________________

9. Al greeted his customer and gave him ten gallons of gasoline from the green pump. The customer forgot his gloves. Al gave him the gloves. He gave Al a big tip and tramped hard on the gas to get to his game of golf. 9. ____________________

10. Mac's helper corrected the gaps in the spark plugs of the green Rambler. 10. ____________________

11. Gus tends the garden across the gravel drive from his gas pump. He cuts the green border with a small sickle. 11. ____________________

12. A gasket must be smeared with grease before it is installed. 12. ____________________

13. Gabe the gambler bet on a basketball game and lost a hundred dollars. Gabe lost all he had got from his boss. His girl, named Grace, got mad and did not forgive him. Gabe the gambler lost his dollars and his girl. 13. ____________________

14. It is possible to control the speed of a motor with a governor. 14. ____________________

15. A garnet is a clear red color. 15. ____________________

16. Argon is a rare gas. 16. ____________________

33.1 Greg's Green Grapes

Greg got some green grapes. Greg ate the green grapes. He ate a big basketfull of grapes. The green grapes made Greg sick. Some green grapes are ripe and do not make a man sick. But greed makes a man eat green grapes. Greg gasped. Greg suffered from his greed.

Greg put some green logs in his grate. The green logs did not burn until he put turpentine on them. The turpentine made the logs burn. Dark gunk was left in the fireplace and Greg felt disgusted. Greg had to clean up the gunk himself.

Dikes Described to Agnes

A dike is a sort of dam to keep the sea from the land. In Holland the dikes separate the land from the Atlantic. The dikes there are made of dirt, rocks, and concrete. They are big. They are covered with grass on the sides and top. They are firm and solid, and they rest on the bottom of the sea. The Dutch drive cars on top of them.

Dick Burton had been to Holland. He described the dikes to his girl. Her name is Agnes. Dick held his hands apart to tell Agnes that the dikes stretched a distance on a flat line. Agnes did not understand. Dick held his hands apart in a different manner to tell her a dike held the sea back to keep it off the land.

Still Agnes asked him to describe it better, as it still did not make sense to her. Agnes asked, "Is a dike like a fence?"

Dick smiled. "I have not seen a fence that can keep the sea from the land. A dike is a big fat pile of dirt, grass, and cement. It keeps the land safe from the sea. Near Holland, the sea level is above the land level. A dike has grass on it, and the top is flat and level, and it makes a place to sit, eat, see the sea, rest, sleep, read, or, in the middle, drive a car. A lot of traffic in Holland passes over the dike that runs for miles beside the sea."

At last Agnes understood. "I see; a dike is a hump of land. It's as if you filled a tunnel with dirt and then lifted or pulled the tunnel off, to leave the hump of dirt."

Dick smiled. "That is a difficult task, as you describe it, but it is correct."

LESSON 34.0 th

1	2	3	4	5
the	then	this	that	than
them	thus	thin	thick	lath
those	third	father	mother	brother
other	both	another	there	thorn
thrust	bath	rather	bother	throttle
thimble	Smith	tenth	fifth	theft
thrift	thump	thud	gather	thug
smith	seventh	thereafter	Athens	Meredith
thunderbird	lathe	throttle valve	three	thermostat
thermometer	path	mathematics	thirst	teeth
month	blacksmith	arithmetic	thatch	north
throb	ninth	these	forth	eleventh
moth	theme			thrust bearing

34.1

1. A metal lathe is made of hard steel. It cuts hard steel with a still harder carbon steel bit. The bit is held in a chuck that travels beside the metal bar that is to be cut.

2. A lath is a strip of material cut from a pine tree or a fir tree. If it is put on with care, plaster locks into the spaces that separate the laths.

3. A metal lath is another matter altogether. A metal lath has little open spaces. The plasterer pushes the plaster into the little open spaces in the metal lath. Metal lath is thinner than lath made from a pine tree or a fir tree. It is a product of modern metal mills.

4. Alfred had a Thunderbird in Athens. He speeded fast over the hills north of Athens.

5. He had to hire a blacksmith to cut the metal lath.

EXERCISES

1. ____________________

____

____

2. ____________________

3. ____________________

4. ____________________

5. ____________________

6. He had to have three thermometers in his bath tub. The third thermometer dangled under the tap. The others dangled in the other end of the tub. 6. ____________________

7. Bob's mother and brother gathered grapes. 7. ____________________

EXERCISES

1. A metal__________cuts hard steel.
2. A bit is held by a________.
3. A___________is a strip of metal cut from a________tree or a___________tree.
4. Metal lath is__________than lath made from trees.

34.2 Thermostats

A thermostat can be made with a strip of metal, like brass, that bends if it is heated. As the metal bends, it operates to turn the electric current on or off. A thermostat that is attached to a furnace turns the current off as it gets hotter. A themostat that is attached to an ice chest turns the current on as it gets hotter. A thermostat in a car radiator keeps closed until the block is hot. A car is apt to stall before it gets hot. The thermostat makes it get hot much faster.

The Governor on the T-Bird

Alfred Thorn had dual carburetors on his Thunderbird. The throttle valves had to be calibrated with care to make the car run in an acceptable manner.

Alfred's mother did not like Alfred to drive as fast as he did. His mother asked the service man at the Thunderbird place to put a governor on Alfred's car. The governor kept the throttle from full speed. It also disturbed the calibrated performance of his dual carburetors.

You cannot be surprised to learn that Al got mad at his mother. He decided to put some sort of governor on her car. It was a little car, and it did not go fast at all. But the governor Al put on it kept it under ten miles per hour.

His mother did not like that at all.

Alfred and his mother did not speak to each other for a considerable space of time. After a month had passed, Alfred remarked to his mother, "I drive ten times better than you do. Therefore if you can drive ten miles per hour, I can drive a hundred miles per hour and still be as safe as you are -- or even a lot safer."

Al's mother snorted, "Nonsense. You cannot think. That is not possible." She was so mad that she spoke in short sentences like that. "Ten miles per hour is ten times safer than a hundred miles per hour, even if you are a better driver. Furthermore, I find you an impertinent scamp, a rascal, and a bad son. I'd like to spank you hard!"

Alfred responded, "Mother, I am a man and I can live as I please."

His mother said, "You are a rascal, but I love you and I do not care to see you killed at a speed of a hundred miles per hour, like a maniac -- that is, like an insane monster." The governors had been taken off both cars a month ago, but they still grumbled at each other like this.

LESSON 35.0 sh

1	2	3	4	5	6
she	shut	shim	shutter	shall	shade
sheet	shatter	shaft	shift	share	shame
shovel	short	smash	shop	ship	sheep
shine	polish	sharp	shirt	Shannon	shipper
varnish	crash	brush	ash	ashes	mash
dash	stash	flash	slash	slush	splash
lash	gush	crush	hush	clash	bashful
rush	flush	gusher	cash	shore	rash
fish	Nash	bush	trash	shiver	shipment
establish	shape	diminish	shuffle	shrimp	mush
dish	plush	sash	shave	shrill	shin
shear	mesh	bushel	push	shed	gash
shot	shelf	hash	shrub	Shell	shell
shortcake	flasher	shark	fresh	shush	shred

35.1 EXERCISES

(Fill in the missing word by selecting a word from the above word groups. The number ( ) tells you the group to use.)

1. Shelton put the crankshaft on the ________ (shelf) (2) and he ________ (polish) ed it with care.
2. He tossed the ________ (5) into the ________ (4) can.
3. With his lathe, Flash Denton ________ es (4) a millimeter of steel from the shaft.
4. Fresh ________ (5) can be eaten at the ________ (4). The shop that sells shrimps also serves ________ (1) and chips on a big decorated platter.

5. In the__________(4)there is a__________(2)Rambler that has been there since its crank________(3)broke, months and months ago.

6. He gets a hundred barrels a month from his____________(3). It is not a big_____________(3).

7. Berton fired a_____________(6)from the barrel of his rifle.

8. The finisher put a nice green on the fender that had been mended after Jack____________ed(3)it into the____________(5).

9. He put a copper___________(3)under the gasket that had been greased with care before he put it on the block.

10. For how much cash can you sell a_____________(3)of fresh_________(5)?

11. Do you suppose that sharks eat____________(5)?

12. In the American desert they___________(1)the____________(6)in the summer.

13. He____________ened(3)his chisel on a carborundum grinder. He made it as___________(3)as a steel Shick blade.

14. ____________(1)metal rusts unless it is protected. "Hot-dipped" ____________(1)metal resists the rust for a considerable time. Sheets of steel are made in mills. There, thick slabs of steel are pressed thin by solid drums of hard metal that turn as the slabs pass by. The slabs of steel are red hot, and the mill can feel as hot as a furnace to the operators that take care of the process.

15. __________s(1)of steel are____________ed(1)off with a_________(3)cutter. they cannot be cut by hand in proper and accurate shapes.

16. Cars are made of__________(1)steel pressed in presses that do not bend the metal, but rather they make it take a different form or ____________(2).

17. The throttle-valve on a carburetor is a delicate item. It must be handled with care. It is as delicate as a fine instrument.

LESSON 36. 0 ng and ing

ng

sing
rang
song
string
strangle
among
singer
ring
mingle
sung
prong
tangle
ingot
strangler
bang
hang
tongs
thing
sting
dangle
angle
sang
king
long
thong
sling
finger
fang
ping
rung
tingle
spring
slung
linger
anger
lung
clang
shingle
bring
strung
longer
Bangor

36. 1 ing

The -ing ending is added in several different ways

It is simply added to the word

jumping
singing
locking
stacking
packing
camping
standing
asking
planting
sinking
finding
checking
muttering
bringing
sticking
tracking
matching
catching
trucking
listing
patching
licking
bumping
hanging
sending
helping
marching
milking
limping
ringing

36. 2. For words ending in two consonants, and for words that have two vowels (usually a long-vowel digraph), add the -ing ending

pressing
nearing
leaning
peeking
beating
feeding
fearing
steaming
leading
keeping
selling
heating
reaching
meeting
reading
drilling
leaping
feasting
bearing
eating
stalling
seating
dreaming
feeling
meaning
dressing
teaching
sealing
seeding
killing

36. 3 For most words ending in e, drop the e and add -ing

smile - smiling
hope - hoping
smoking
dining
naming
pasting
snoring
chasing
raking
shaking
bite - biting
ride - riding
voting
hiding
taming
gliding
diving
baking
staring
trading
dance - dancing
like - liking
paving
taking
shining
flaming
saving
tasting
making
blaming

36.4 **For most words with short vowels, double the final consonant before adding the -ing**

run - running
sit - sitting
sun - sunning
fit - fitting
dig - digging
hit - hitting

matting
letting
patting
skipping
napping
nodding
sipping
planning
spinning
pinning
tapping
cutting
stopping
slapping
dropping
forgetting
tipping
getting
shutting
humming
dipping
fanning
ripping
robbing
dripping
rubbing
mopping
setting
rotting
trapping

36.5

EXERCISES

(Fill in the proper -ing ending)

1. If the operator is cut____on his lathe, it is smart to keep at a safe distance from him.
2. The girls lin___the street and clap____made the marathon runners glad as they came to the finish line. The cord stretching across the finish line parted as the first tunner ran into it.
3. It takes a lot of practic___to make a fine basketball team.
4. Sharp metal filings drop ___from the lathe onto his hands made his hands hurt.
5. Run ___to the green convertible and greeting the driver, the attendant tripped over the curb.
6. After eat___seven hot dogs, he no longer felt much hunger.
7. The attendant strung the red and green paper lanterns up on a long rod above the gas pumps. Danc____in the summer sun, the lanterns attracted customers. After a long hard storm, that came on before seven o'clock in the morning, the lanterns melted. The paper lanterns melted from the dampness left after the storm. So after that disaster they put up colored metal propellers, that spun and flashed in the sunshine. Shin___and glitter___ in the sunshine, the propellers pleased the attendants as much as they pleased the customers.
8. The helper has to remove several gaskets and covers before it is possible for him to put a spark plug in its proper place over the fir___chamber.
9. In the hills of California, in the far gone times of the past, they had to bite a horse's ear to make him behave. Bit___the ear of a buck___bronc is something that needs care, practice, skill, and a brave man.

10. Car radiators made of plastic or steel do not cost as much as copper radiators, but they are not conduct_____ or transmit_____ the heat as fast as copper radiators do.

36.6 Making Silver Dollars

Hal Gorman had a small silver ingot that he got from a silver merchant on Bean Street. He polished his silver ingot until it glittered in the sun. Later he gave the ingot to his son for a present after he had got the best marks in his class, in seventh grade. Hal loved his son, and he was pleased to see him get the best marks in his class. The son liked the idea of melting the ingot and making silver dollars with the metal. Hal had to tell him that making silver dollars in private means ending up in prison for a long term. In pirate times they might hang a person. The government likes to make all the silver dollars in America. So it is not the best thing to do, in private, with a silver ingot. After discussing the matter with him for a long time, the son did understand his father at last. It was not simple to give a seventh grader all the reasons for not making silver dollars in the cellar -- not if he has a silver ingot.

A Clambake

If you are steaming clams and baking lobsters in December, it is better to do it inside a cabin; there, you can be protected from the ice and the bitter blasts that are raging along the shore there at the seaside. Fred Stoller remembered eating clams and lobsters and mussels and mackerel in a clambake at the seaside, in the summer time. They dug a pit in the sand, filled it with hot rocks, put in the things to eat, and packed them in kelp so that they steamed from the intense heat of the rocks. After some time of steaming, the clams, mussels, lobsters, and fish tasted superb. All agreed that camping at the seaside and eating steamed fish makes a fine life. There is nothing better than fresh-steamed lobsters dripping with melted butter. Fred is positive that it beats all other eating.

LESSON 37.0 nk

Ban plus d makes band (say the sounds)
bang plus k makes bank -- the n in bank is an ng sound, as n always is when it appears before k

1	2	3	4	5	6
tank	sank	rank	bank	ankle	flank
blanket	thank	plank	mink	think	stink
skunk	shank	clank	dank	sink	lank
Hank	frank	tanker	banker	ink	pink
drink	drunk	drank	crank	blank	link
crankshaft	trunk	blinker	chunk	sunk	slink
monk	bunk	bunker	dunk	gunk	hunk

37.1 EXERCISES

(Fill in the missing word by selecting a word from the above word groups. The number ( ) tells you which group to use.)

1. The ______$^{(6)}$of asphalt in the gas tank made a deposit of ______$^{(5)}$ in the crankcase.
2. ______$^{(1)}$tossed his glove over the pump and into the ______$^{(1)}$ on the big gas truck.
3. The dealer and the salesman had a ______$^{(2)}$chat regarding the cracked crankshaft in the salesman's Corvette.
4. The helper gathered up the pile of valve tappets from the table and dropped them in the bucket. They tumbled from his hands into the bucket with a ______$^{(3)}$-- clang -- bang -- ______$^{(3)}$ ______.$^{(3)}$
5. If the attendant ______s$^{(2)}$his customer, the customer is apt to be pleased and come back another time for more gas and service.
6. On a camping trip, Frank hid under his blanket. He smelled a ______,$^{(1)}$ and the ______$^{(1)}$stank!

LESSON 38. 0 W w

will
wilt
wine
were
swing
wiring
sweet
was
weak
switch
win
witness
wagon
with
web
wind
swim
wag
wean
well
winner
wave
wig
witch
wide
wife
wish
swam
weave
wane
winter
we
twist
windmill
wipe
wise
wit
swine
western
welcome
wing
Wilfred
wet
swell
twig
wiper
twine
weasel
weld
swipe
wild
west
sandwich
twitch
wire
wiping
weep
William
willing
waste

LESSON 39. 0 wa and aw

In these words, the a after w sounds like the a in all.

warm
water
watch
warn
wart
Watson
ward
Walter
swat
want
swarm
wasp
warp
wash
swan
war
waffle
wander

In these words, the w after a makes the aw sound like the a in all

saw
drawn
lawn
paw
law
slaw
awful
claw
flaw
awning
thaw
fawn
draw
straw
caw
raw
awl
pawn

39. 1 EXERCISES

(Fill in the missing word.)

1. The men toss salt on the ice to th___it.
2. Ice turning into ___ter is melting. A river is__________if its ice is turning into water. A chicken taken from the grocer's or butcher's ice chest will th___but it will not melt.
3. Walter is willing to clean the______pers with solvent.
4. Wilbur, on the other hand, will not clean______with solvent. He prefers to clean them with a rag and______. If the water is warm, it works well to clean the_______. If the_______has suds, it will also wash the rag well.

5. It is wise to replace the wipers if they are not________ing well.

6. Some Pontiacs have__________that disappear if they are not working.

7. Seven swans_______across the________water.

8. An electric________is wonderful for_________the dishes. It will make the glasses cleaner than they can be_________in the sink.

9. William_____that the barbed wire fence was twisted and broken.

10. Wilbur Wentworth watched the warm_______washing on the shores of Florida.

11. The wiring that went to the_____itch was defective. It was not insulated.

12. Weston saw a watch under_______in a glass to demonstrate that it did not leak a single drop. The steamship United States went across the Atlantic with a________strapped to its side far under the water line. The________did not leak. We wonder if it kept proper time under the_________.

13. Will will make his_____at the law office. The word_____has three meanings in that sentence. Lots of English words have more than a single meaning. Sometimes the same word has different spellings that give it different meanings. Pare means to take off the skin, of a peach or an apple. Pear is something we eat, that comes from a pear tree. There is another spelling of the word that you will see later. It has still another meaning. The word "pear" has a pronunciation for the ea that you have not seen before this lesson.

LESSON 40.0 J j

One of three spellings of the j sound.

1	2	3	4	5	6
just	jet	jam	Jean	Joseph	jack
Jack	Jill	James	Jason	jeep	jog
major	jumper	Jacob	jab	jar	Jess
jump	jug	jade	Jim	job	jig
jaw	jerk	jut	Jane	jag	jeans
eject	inject	object	reject	majestic	Japan
jingle	jungle	junket	jiggle	ajar	jitterbug
Jasper	adjust	adjustment		adjuster	jitters

EXERCISES

(Fill in the missing word by selecting a word from the above word groups. The number tells you which group to use.)

1. It is just time for Joseph to go________________ging$^{(6)}$.
2. James has a ticket to take a jumbo____$^{(2)}$to Washington.
3. ______$^{(4)}$hired a_______$^{(5)}$just for the morning.
4. The______$^{(2)}$of gasoline held five gallons.
5. The helper wore________$^{(6)}$that were covered with grease and gunk.
6. Drag racing is a________$^{(1)}$sport in America. Better cars come as a result of devices developed by drag racers.
7. The tiger_______ed$^{(1)}$into the tree. He was a strong_______$^{(2)}$.
8. Jasper called, "Don't bug me! I have the________$^{(6)}$from working on the____$^{(2)}$in this carburetor. I object to this_____$^{(5)}$!"
9. The boss called back, "Hard_____s$^{(5)}$are part of the_____$^{(5)}$. We don't give top dollar to______s$^{(2)}$that get the_______$^{(6)}$ just from working on some little______$^{(2)}$.
10. Jasper did not like to be called a_______$^{(2)}$. He objected to the word. But the boss jumped into his______$^{(5)}$, ________ (3) the starter, and went off with a_____$^{(2)}$.
11. The parts are fitted into a_____$^{(6)}$ so that it is possible to cut them to the perfect shape. A_____$^{(6)}$ is a kind of pattern that makes parts fall into the correct places or makes a saw go in just the correct line.

12. James made an adjustment on the speedometer cable so that the hand did not________(4).

LESSON 41.0 Soft g

(A second spelling of the j sound.)

1	2	3	4	5	6
gem	gent	agent	gentle	magic	margin
age	rage	image	imagine	cage	gentleman
engine	engineer	register	hinge	range	ranger
stranger	arrange	sponge	singe	plunge	giant
wage	danger	advantage	genius	detergent	lunge
General Motors	general	manage	leverage	baggage	garage
General Tires	damage	wages	engage	page	stage
fragile	Gerald	German	agenda	large	charge
enlarge	barge	generate	generator		

41.1

EXERCISES

(Fill in the missing word by selecting a word from the above word groups. The number tells you which group to use.)

1. He saw an________(3)of himself in the mirror.
2. The first______s(5)of the leaflet tell us to drive with care if we are still learners. The first stages of driving a car demand the most care.
3. That_______(1)has to have large jets to get the gas it needs for top speeds.
4. If the gearshift lever is put in first speed, the gears will_______(4) and the car will start up a steep hill.
5. We________(4)that____s(1)will rise during the coming months.
6. This drag racer wants larger jets for more jump on the other cars as the signal changes. He will be________ed(5)in some village if he________s(6)along the central street at top speed.
7. Will a five-_______(6)rocket take men to Mars?
8. He___________d(3)the glass and wiped it with a wet rag.

LESSON 42.0 dg

(The same sound as j or soft g.)

1	2	3	4	5
edge	wedge	ridge	judge	pledge
dredge	sludge	hedge	trudge	fidget
Dodge	lodge	dislodge	smudge	midget
badge	bridge	ledge	ledger	sledge

42.1

EXERCISES

(Fill in the missing word be selecting a word from the above word groups. The number tells you which group to use.)

1. The crankcase was full of gunk and______(2). Sometimes it is called varnish.
2. A shim is a sort of______(2)that increases the space between metal parts.
3. He wanted to keep within his budget; so he kept a________(4) and entered all of his purchases in it.
4. The______(4)ordered the officer to_________(3)the man from his seat on the bench. The man was making a disturbance.
5. Major Hodge dragged the baggage across the ice with a_______(1).
6. He was cutting the_______(3)by the street. A car came at him over the curb and he had to dodge and run for his life.
7. The policemen________d(1) the river under the_______(2). The lost man had jumped from the bridge. A cop lost his______(1) as he was helping to________(1)the river.
8. Holding it in his tongs, Jacob plunged the red-hot steel______(2) into the water. He planned to temper the steel, but the water made it hard, nor strong.
9. The manager held the chisel and the helper hit it with a big _________(5)hammer.
10. Sedge is a sort of plant. It is a reed that is seen on the_____(1) of a lake or river.
11. The man working in the garage had a______(4)of grease on his chin.

12. The ________(4) asked the man responsible for the accident whether there was much difference between negligence and carelessness? The man said that he was both negligent and careless. Negligence is not taking care to do something important. It is neglecting to do something. Carelessness is just not watching and seeing what is going on. A man is negligent in not locking up. He is careless when he hits his hand with a hammer.

LESSON 43.0 wh

when
whenever

whale
wheelbase
whirl
whitecap

while
whether

whack
whereupon
whirlwind
Whitby

what
whereas

wharf
who
whom
whitewash

which
wherein

wheel
whim
whittle
awhile

white
whereon

wheat
whip
whisky
whole

where
whatever

whereof
whine
whisper
whither

43.1 Who Hit Whom

The policeman asked where and when the accident had happened. He made his report on a sheet of white paper. The sentences began with words like "whereas" and "whereupon" and "wherein." At first, the policeman did not seem to care whether the cars in the accident were damaged. He wanted to have the precise facts as to whether the drivers were injured. Then he asked whether the passengers were injured. At last he inspected the cars to see whether there was a hundred dollars worth of damage. The big car hit the little car a smart whack and damaged its front wheel. What mattered to the drivers was that, after all, the passengers were not hurt. Where the accident had taken place there was a long white mark on the street; traffic had backed up for a while; and both drivers had forgotten whatever plans there had been for the evening. All the persons in both cars had lost their appetites, and they went back to sleep with no idea of where or whether they had been going to eat. When they saw a doctor, he suggested that they had all suffered a mild case of shock.

When the police officer made his report, he reported both who hit whom and when and where the accident happened. He also reported that the drivers did not seem to have been drinking vodka or beer or gin. That was correct. They had not been drinking.

LESSON 44.0 ai (ā), and air (âr)

44.1 ai (ā)

1

Sal — sale — sail
pal — pale — pail
Mal -- male -- mail
Hal — hale — hail
ball — bale — bail
tall — tale — tail
plan — plane — plain
pan -- pane — pain
mad — made — maid
pad — — — paid
gate — gait
waste — waist

2

fail
nail
wail
rain
brain
praise
sprain
lain
grain
faint
stain
jail
rail
Spain
gain
remain
trail
raise
wait
drain
train
bait
paint
trailer
snail
sailor
contain
tailor
chain
braid
detail

44.2 words with air

air brake
airlift
air valve
airborne
airline
air
aircraft
airplane
hair
airbrush
airship
fair
air force
airspace
airmail
air gun
airsick
lair

44.3 said and again

44.4 EXERCISE

(Fill in the missing word by selecting a word from the above word groups. The number tells you which group to use.)

1. The ______$^{(2)}$ left a faint _______$^{(2)}$ of slime where he traveled along the garden wall.
2. The jet _________$^{(3)}$ left a white trail of vapor as it sailed, at 35,000 feet, across America. The __________$^{(3)}$ takes some of the mail along with it.
3. The ______$^{(2)}$ in Spain falls on the _______$^{(1)}$, much of the time.

4. A little whirlwind got Helen and whirled her dress up to her ________$^{(1)}$.

5. The manager left a______$^{(2)}$of detergent where he spilled his ______$^{(1)}$of suds on the cement drive.

6. The general manager of the firm came along later and asked who had__________ed$^{(2)}$to clean up the______$^{(2)}$that he had left on the cement drive.

7. Gerald, the helper, rushed over with a paint brush to remove the white_______$^{(2)}$of the detergent. The manager asked him what he was going to do there with a paint brush and all those ______s$^{(2)}$. Then Alfred came to his aid with a______$^{(1)}$of clear water and a long-handled mop. He spilled the water on the white ______$^{(2)}$and rubbed hard with the nop where the______$^{(2)}$was thickest. He had it all clean while the general manager and the manager were speaking together. The manager praised Alfred for working so fast. Alfred got rid of the water with compressed ____$^{(3)}$, which came with such force that it swept the water off of the drive.

8. The children_____ed$^{(2)}$at the gate before they got on the train.

9. When a person______s$^{(2)}$his ankle he is liable to strain his arm while leaning on a crutch.

10. What pigment makes white______$^{(2)}$the color it is? I think white _______$^{(2)}$contains lead, which is said as if it were spelled "led."

11. The tailor stitched each_______$^{(3)}$of the garment with fine red silk. The silk made a pattern which decorated the white cloth of the garment. The garment was a dress.

12. Some persons live in a__________$^{(2)}$when they work in areas where there are not a large number of apartments or cottages to rent. When a worker and his wife and children live in a _________$^{(2)}$they must take______s$^{(1)}$to be neat, for there is not much space in a________$^{(2)}$.

13. Whisky is made from wheat and other_______s$^{(2)}$.

14. When the distributor has to be adjusted, the margin of error in the adjustment is small -- less than a hundredth of an inch.

15. Jack Jenkins was well paid to clean up after the_______$^{(2)}$storm. When he had finished, he was_______$^{(1)}$, and he went and got some paint for the inside of his trailer.

16. Helen Adair has fair______(3). She washes it with______(2) water when she can get a pail of______(2)water.

17. The Thunderbird comes with whitewall tires which have to be cleaned from time to time. It takes awhile to clean whitewall tires.

LESSON 45.0 ie (ī)

(Regular ie) Silent e indicates that the vowel before it is long.

tie
lie
replied
cried
pie
applied
fried
flies
supplied
tried
dried
denied
tied
cries
untied
die
allied
pried

45.1 EXERCISES

(Fill in the missing ie words)

1. Jess Hodges________the laces on his sneakers.

2. When he________the paste polish, it made his Rambler all dull, but when he rubbed it hard with a soft cloth it shined so well that it reflected the sun. He put the same paste polish on hub caps and bumpers, and he got the same results on them. The paste________in a minute after it was ________.

3. The lodger went to the grocer's to get some________chicken. While he was there he got an apple pie and some________apricots. The grocer also__________him with an insulated bag to keep the________chicken-hot.

45.2 What Must the Apprentice in the Car Repair Business do?

The apprentice is obliged to work hard to assure(1)his success. He is obliged to work hard in the shop, to do his best to master the trade.

He is responsible to himself to preserve his self respect and keep the respect of those with whom he works, his boss and the customer he serves.

He must make all possible efforts to understand the apprenticeship standards and abide by all forms, practices, and orders established by his apprenticeship committee. He will have to purchase his materials that will teach him his trade -- and he must keep these materials and have them where he can turn to them for reference when a problem comes up. He must purchase other materials that he will have to have for his work, and he must keep them in order, clean, and well cared-for.

He must submit all reports demanded by his apprenticeship committee and meet with the committee when he is instructed to do so.

He must be willing to attend classes and/or complete home work that has been given to him by his apprenticeship committee or his instructors. His time spent working on such tasks at home is not considered as work for which he will get paid. He will not be paid unless the time so spent is time during his regular working time, and he is made to do so by his boss.

This is not simple for the apprentice. Too(2) often, it is not made clear to him what he must do at work and at home(3). Both his boss and his wife, children, and pals must think of what he has to do to master his job. He must be given time to work at home. He must have silence and a place to work and to keep his materials. A work place is an important thing for a man who is mastering a job.

(1) From lesson 54
(2) From lesson 51
(3) From lesson 47

LESSON 46.0 X x

(x has the cks or ggz sound.)

wax
Mexican
Marx
sex
excess
hexagon
express
sox
Caxton
Expo-70
perplex
X-ray
exile

mix
lax
ax
extra
box
exist
flexible
toxic
Claxon
oxide
vex
axle
Expresso

Max
relax
Dexter
extent
six
exit
excavate
Texaco
flax
oxen
duplex
textile
exist

tax
fox
text
ox
sixth
deluxe
expel
Texas
flaxen
Roxane
vixen
tuxedo
sexton

sax
exact
next
extend
mixed
Exlax
expose
Texarkana
flaxseed
Maxine
Rolex
examine
Exide

Ajax
Baxter
Rex
exceed
laxative
maximum
maxi skirt
intoxicate
lexicon
annex
apex
exam
example

46.1 Max the Waxer

Max was a car waxer and he liked to clean cars. He also liked to clean and wax linoleum and polish it well. Max did not extend his working time past six o'clock, nor did he work extra time unless he was paid extra. And then he complained that the wax for the cars and the linoleum was toxic. This vexed his boss, who was positive that the wax was free from toxic matter. The label on the bottle said so. But nevertheless, Max wanted the bottle examined at Tex, the druggist's, who was in the next block near the Texaco place.

The boss was in his tuxedo, going to take a taxi to a dinner date, but he went to the druggist to have the wax examined. Tex, the druggist, said that the wax was free from all toxic elements. The boss expressed his thanks for the service. He smiled at a girl who was waiting at the exit, wearing a maxi dress. He wished that she was wearing a mini dress, or even a micro dress. He expected Max, the waxer, to stop complaining against the wax. And Max did stop, but it was not long before he had something else to complain against. He said that the cars were toxic.

He said that where they were rusted, they had tetanus germs and if he scratched himself -- well, tetanus was a terrible thing to Max. His boss offered to take him to a doctor and have an anti-tetanus vaccine injected. But Max preferred complaining to doing something to correct the problem.

Max is still waxing cars and linoleum, still complaining against the toxic elements in the wax and on the cars. Next he will find something toxic in the linoleum. Perhaps it will be ants, spiders, fungus, or little germs that no one can see.

Some time Max will get sick from something, since we all get sick at some time; and he will blame it all on his boss and the toxic wax.

LESSON 47.0 Long ō (ō) -- with and without the silent e

1			2	3	4	5	6
not	-	note	spoke	bone	cold	bolt	sold
cop	-	cope	hold	told	whole	smoke	stove
dot	-	dote	Oldsmobile	globe	pole	gold	roll
cod	-	code	chrome	coke	fold	mold	rope
hop	-	hope	those	tornado	stone	hose	Ohio
mop	-	mope	stole	post	toll	focus	Camero
tot	-	tote	Toronado	Volvo	old	home	hone
nod	-	node	joke	alone	rode	open	vote
con	-	cone	El Dorado	most	over	magneto	explode

47.1 EXERCISES

(Fill in the missing word by selecting a word from the above word groups. The number tells you which group to use.)

1. The electric wiring of modern cars is often________ed$^{(1)}$ by color. That is, each wire is insulated with a colored covering that tells the worker where it is to go.
2. The Toronado is an expensive car in the______________$^{(2)}$ line. It has front-wheel drive and a lot of speed. The Cadillac ___________$^{(2)}$ has the same front-wheel drive as a___________$^{(2)}$.

The name, __________(3)is a sort of hurricane -- a twisting wind so strong that it can lift a car or a tree or a barn. Perhaps a Toronado is not as strong as a full-scale __________(3). We hope not. Some persons think that some American cars go faster than is safe for their drivers or ______(3)of us. More than 50,000 persons die from accidents in twelve months in America. Of these, _______(4)17,000 are pedestrians.

LESSON 48.0 Final y

48.1 Final y as long i: (ī)

try
apply
reply
by
shy
defy
three-ply
cry
pry
buy
my
sky
sty
dry
sly
why
fly
imply
deny
fry
thy
supply
crucify
July
rely

48.2 Final y as long e (unaccented) (ē)

funny
many
rocky
candy
seventy
copy
marry
tiny
city
difficulty
sunny
only
study
sorry
ninety
foggy
carry
dirty
hungry
lively
happy
Henry
rainy
dusty
forty
carry
empty
putty
sticky
liberty
silly
party
pity
twenty
thirty
Harry
stormy
greasy
tricky
any
fifty
windy
lady
variety
Hildy
shiny
slippery
hurry

48.3 ay as long a (ā)

may
lay
clay
stray
ray
betray
Monday
mayor
May
pay
delay
stay
dray
inlay
Thursday
say
bay
tray
away
crayon
layer
Friday
day
play
gray
jay
bray
Baylor
Saturday
hay
way
spray
gay
hurray !
Sunday
maybe

48.4 ey as long e (ē)

key
valley
monkey
donkey
turkey
whiskey

48.5 they and their

48.6

1. The assay proved that the ore was twenty percent gold.
2. He finally got the tire changed, and his customer went off in a hurry.
3. Tires today often go twenty times as far as they did fifty years ago.
4. Henry was in a hurry to get to the party, but it was a stormy evening and he had to wait for a taxi.
5. Hungry children have difficulty being lively and happy.
6. The skilled typist will apply the skill that she has gained by practicing faithfully.
7. A tire has a number of layers of rubber and fabric. Each one is called a ply. A three-ply tire has three such layers, but probably there is no such thing as a three-ply tire.
8. They went to buy some whiskey for the party. The whiskey cost five dollars and ninety cents a bottle. That is paying a lot for something that, if you don't drink it very carefully, will give you a hangover.
9. During the month of April the leaves begin to unfold, and by May they have opened fully and the trees are shady and green.
10. If we study reading faithfully, we shall master the skill in a fairly short time. The main difficulty in reading is getting started, but when we begin to connect the letters with the syllables that they spell, the rest of the job is easy. It is simply a matter of getting hold of one letter after another. Every extra letter spells many more words.
11. On Sunday morning Mrs. Crayton made a tray full of tarts. Tarts are little pies filled with gummy things like cream cheese and strawberry jam and grape jelly. They are gummy and tasty, and they are often greasy on the fingers.
12. On a windy day the hoses of the gas pumps may sway in the wind.
13. Sway-bars on a car are for making fast turns and not tipping over.

LESSON 49.0 Initial y, and y as short i (ĭ)

49.1 Initial y

yet
year
yelp
Yukon
yes
Yale
yoke
yummy
yell
Yankee
York
yeast
yard
yo-yo
yesterday
yawn
yuk

49.2 you your one once

49.3

ay is like ai			y begins a syllable (like initial y)		
layer	crayon	mayor	Mayan	lawyer	Sawyer

49.4 Y as short i

system
sympathy
ethyl(gasoline)
mystery
dysentery
syllable
symptom
cylinder
synagog
symbol
syndicate

49.5 Today or Yesterday

Clayton Sawyer said, "Yes, Frank, a Yale lock will protect our yard from robbers. If the lock had been there yesterday, I can see us having more confidence today, and more confidence all the coming year."

But Frank yawned and replied, "What happened yesterday is crying over spilt milk. You must think more of what may happen today or after today. Your plans must not be made only from what happened yesterday. Any lawyer will tell you that what happened yesterday is no safe test of what is going to happen next."

"Yes," Clayton, "that may be so, but if man will study history he will find many important lessons in the story of the past as a map for what to do today and next month and next year. Not everything in the past can be trusted to direct us for today." Clayton said, "Frank, you are a hard man in a debate, I give up for the present."

49.6

1. There once was a Cadillac with sixteen cylinders. It was a deluxe car, and it cost you more money than you can imagine with any peace of mind.
2. The reason the pistons inside the cylinders in today's cars move so much less rapidly back and forth in the engine block is that they have a big diameter and a short thrust; whereas those in the old Cadillac V-16 had a small diameter and a very long thrust. So the piston traveled much further per mile than a piston in one of today's cars travels per mile. A diagram or drawing can make all this very clear to you.
3. Symbols or marks on parts for a car can tell you the correct way to fit them together or fit them into the correct place in the car.
4. The mayor of your city may be a lawyer by training and trade. The mayor of my little village runs the bakery by the bus stop. My mayor puts yeast in his cakes. Can you say that your mayor puts yeast into the running of your city?
5. When we went on a winter trip to Barbados, in an airplane, we were examined by a customs officer. He marked my luggage with a white crayon to tell the man at the gate that it was OK to let us go. Barbados was a British colony until 1966. Today it is independent, but much of the property still belongs to Englishmen.
6. Some experts think that ethyl gasoline adds bad gases to the air. So they are planning today to make cars that will run on gasoline that has no ethyl, and the gasoline refiners will have to make lots of gasoline that has no ethyl in it to raise its octane rating. Running on gasoline with a smaller octane rating, cars will have to be made somewhat differently.

LESSON 50.0 oa as long o (ō)

coat
loaf
groan
toad
croak

oat
boat
oak
soak
cloak

float
loaf
road
foam
loam

goat
soap
coast
coal
moan

oar
board
roar
hoarse
soar

50.1 do and does

50.2

1. In the old days, hundreds of years ago, the kings and princesses who lived in big stone palaces had broad, deep ditches dug and filled with water. These ditches were called moats. They encircled the palaces in order to keep the enemy and robbers from getting in. A sort of bridge, that was hinged near the palace, on the inside of the moat, was called a drawbridge. They raised it to keep the enemy away, and they let it fall across the moat when they wanted to let visitors cross it and enter the palace, You will see drawbridges in many old paintings.

2. Chopped hamburger, with chopped pork, can be mixed together, flavored with salt, pepper, and tomato paste, and baked in the oven to make a meat loaf. Covered with melted cheese or gravy, a meat loaf makes a fine main dish for dinner.

3. The word float has a number of different meanings. As a verb (that is, a word that tells what happens) it means to stay on top of a surface of water, or gasoline, or such. To float is the opposite of to sink. The word also means the thing that floats. We have a float for swimmers, in a lake or bay where they swim. They sit or lie on the float, in the sun. We also have a float in the carburetor of a car. It operates a valve that controls the entrance of gasoline. When the basin is full, the float rises and shuts the valve so no more gasoline can come in until the float sinks under a (certain) line that marks the spot where the valve opens again. As the gasoline runs into the basin, it raises the float up above the same line and so closes the valve so that the running of gasoline into the basin stops.

LESSON 51.0 oo (o͞o)

moon
boo
food
toot
room
soon
moo
boot
boom
boob
spoon
coo
poor
cool
racoon
balloon
too
loot
pool
stool
noon
fool
root
tool
proof

spool
loose
smooth
booth
loop
broom
troop
poodle
droop
shoot
tooth
groom
stoop
scoop
choose
loosen
goose
groove
snoop
rooster

51.1 The Homemade Boomerang

His wife smooths the bed covers and sweeps the room with a broom. Then she chooses something to do for a pastime, with the children. Soon they are dressed and eager to go off on a visit. In summer, she takes them visiting in the cool of the morning. In winter they choose to stay home in the warm room. Her son, Henry, wants to try his boomerang in the park, but it's too cold. He made the boomerang by nailing a pair of twelve-inch sticks together. The beveled edges are what make the boomerang turn and come back to the person who tosses it spinning off into the air.

51.2 oo as short oo (o͝o)

foot
cook
brook
hood
soot
hook
crook
Brooklyn
good
took
shook
hoof
book
look
wool
cooky
wood
nook
stood
rookie

51.3 The Kookie Rookie who put up his foot

The big booby kicked the bumper of his model Toronado and sent it flying across the room with his foot. He hurt both his foot and the Toronado. He tried to soothe his foot with linament. There was no way to soothe the model with linament or medicine. The paint on the bumper of the model was broken, and the back door was dented and loosened. His mother shook Booby hard. She also looked at him hard. And when she slapped him she said that she did it for his good. Then she sent him to his room. All this for just kicking a small model Toronado.

51.4 EXERCISES

look
loot

boot
book
took
tool

rookie
rooster
shoot
shook

stood
stoop
root
soot

cool
wool
hood
food

goof
hoof

LESSON 52.0 ow

52.1 ow (pronounced ou) as in cow

cow
brown
howl
flower
power
scow
allow
now
gown
clown
drown
shower
scowl
crowd
down
sow
fowl
towel
vow
trowel
powder
town
bow
crown
dowel
vowel
powerful
coward
how
growl
owl
row (commotion)
plow
Eisenhower
tower

52.2 ow (pronounced ō) as in blow

blow
own
grown
hollow
shallow
low
snow
lower
mellow
owe
slow
rowboat
throw
pillow
tow
glow
mow
crow
window
stow
bowl
mown
willow
flow

Some pairs of words cannot be read correctly unless you see them in a sentence:

	ou		ō
bow	(politely (of a boat	bow	(tie (and arrow (window (for a violin
row	(a fuss	row	(of seats (a boat
sow	(female pig	sow	(seeds in a garden

52.3 EXERCISES

Fill in the missing words. (The words missing have an ow sound)

1. ____________ led a powerful army into France.
2. His ________ brow was furrowed with a ________.
3. Clean ________ are needed to make an attractive rest room.
4. The ______ in the circus pretended he was ________ ing in a bowl.
5. A wolf ________ at an owl perched on a radio ______. The ______ scowls at the wolf. Then the ________ flies slowly away on its ________ wings.
6. How much ________ has a 380 cubic inch motor?

(The words missing have an ō sound)

7. We usually __________ the windows when there is a shower in summer.
8. A sailboat may be ________ than a rowboat; but if there is a brisk wind the ________ will be much ________ than the sailboat.
9. Maynard drinks coffee by the ________. He drowns his coffee in cream to keep himself from getting too excited.

(The words missing may have ow or ō sound)

10. It is a fact that crows dislike owls. If a band of ______ see an on the branch of a tree, they will make a wild racket, cawing and flapping their wings as they circle the ______. Some farmers put up stuffed ______ to bother the ______ and perhaps to keep the band from ________ ing.

52.4 The Slow Trowel and the Power Mower

Jack smoothed the cement with a wide trowel. A crowd gathered to watch him at work and see how he handled his trowel. The radio report had said that there was going to be snow, and Jack wanted to get his cement down and smooth while it was still warm and the cement was able to harden but not crumble from the cold. If the thermometer drops way down, cement will turn into powder before it gets hard. On the other hand, a very large body of cement has to be cooled by refrigerating devices. When it is mixed, cement generates a good deal of heat, which cannot escape when there is a large solid body of the cement. Hoover Dam, at the foot of Lake Mead in Nevada, near Las Vegas, had to have a big cooling system to make its cement harden. Jack was thinking of all this while he troweled his cement smooth and the crowd watched. He put grooves in the cement to make it seem like blocks of stone, and he made a small crown over the whole area so that the water was going to flow off when it rained. The owner of the garage came out to watch, and his little girl watched at the window of the office.

Later, Jack was told to mow the grass with the lawn mower. He took the power mower and did the job fast. In fact, the strip of grass was so narrow that he had to go back and forth along it only three times to finish the job.

LESSON 53.0 tion -- sion

53.1 tion: pronounced" shun"

motion
lotion
station
position
condition
connection

action
locomotion
section
fraction
intention
correction

nation
commotion
collection
immolation
subtraction
production

notion
mention
portion
attention
attraction
inspection

traction
reduction valve
addition
vacation
multiplication
function

53.2 sion: pronounced "shun" or "zhun"

tension
mission
provision
admission

torsion
mansion
television
expression

transmission
vision
conclusion
confusion

permission
division
expression
fission

session
occasion

53.3 EXERCISES

Find tion and sion words to fill in the blanks

1. Howard had to give up his________at the service_______. He was suffering from___________.
2. The third_______of the map had some_________. There were bridges and roads that had been completed since the second______of the map.
3. The_______of the roads near that town is so bad that it can damage not only your______but even your________.
4. In arithmetic we study_______,________,________, and _______. Short division is easy. Long ____________is harder.
5. The day will come when service________have hand________as well as soap in the wash room.

53.4 SHORT STORIES

Drivers Need Good Vision, Collision Insurance, and Tires in Good Condition.

A. A torsion bar is installed under tension. It is a good development in the suspension of modern cars. When a wheel hits a bump, it has to twist the torsion bar. The strong steel of the bar resists the twisting motion and acts like a shock absorber by holding back the distance that the wheel jumps from the shock of the bump. That is, it will not let the wheel jump as far up as it wants to.

B. "When the tetraethyl lead is taken from gasoline to reduce the lead pollution and contamination of the air, the gasoline will have a lower octane rating. The cars made to run on this gasoline will have a lower compression ratio."

C. He had collision insurance, but he did not collect for all his damage. His car was in terrible condition, but collection of the full loss was impossible. A tire was blown out, a wheel was bent out of its proper position, and there was a bad dent in the section of the car just in front of the door. The insurance company gave him permission to have it repaired, but they paid only a portion of his bill. And in addition to that, they did not pay him for several weeks.

D. Friction is defined as the resistance to movement or motion that comes when one material is rubbed against another. Gears turning against each other generate heat from their friction. We put something in between metal parts so they can move against each other with no friction. What is it? Often it is grease. The pistons moving up and down inside the cylinders of a car make a lot of heat and friction unless something is put between the piston and the cylinder to make it slide easily. What is it?

E. A man who has good vision can see clearly, up close and at a distance. If something is the matter with his vision, a man has glasses. These are made with a correction, which is the term for how they correct his vision, with lenses shaped carefully so that they make him see properly.

F. The condition of the driver's tires was plenty of explanation for the accident. They were worn smooth. When he took the turn too fast, he skidded across the road and turned over. Driving a convertible, with the top down, he had no protection, and he was badly hurt when he was thrown from the car as it tipped over. The conclusion of this story is that you must not drive too fast in an open convertible with bald tires.

LESSON 54.0 long u (ū), and (o͞o)

54.1 Long u with the silent e

tub -- tube
cut -- cute
cur -- cure
us -- use
mut -- mute
crud -- crude
cub --cube
hug --huge

tune
Luke
fume
prune
brute
truce
rule
rude
lube
June
spruce
dune
pure
include
sure
reduce
jute
parachute
flute
execute
mule

54.2 The long sound of the letter u is pronounced u as in unit (u says its name) or o͞o as in lube.

fury
unite
truth
super
manual
lunar
fuel
suicide
fusion
truly
Ruth
uranium
munitions
lubricate
lure
puma
butane
sugar
duty
humor
student
music
produce
lubrication
luxury
pollution
July
unit
menu
ruby
occupy
fluid
Lucite
putrid
Mercury
ruling
rumor
United States
museum
Lucy
sulfuric acid
mutiny
ruin
superstition
ruler

54.3 EXERCISES

1. See how many words from the above lists you can find to fill in the two blanks in this sentence.

   The _______ was displayed on a _______ tray.

Fill in the blanks:

2. ________________ the wheels and bearings and __________ up the motor.
3. The directions in the _________ are _________ to tell you how to blow the dust from the copper __________ that runs from the gas tank to the carburetor.

54.4 Huey and Rudy Truly Need Rules

Huey ran short of fuel on the expressway. Then he had a puncture. It was in July and it was very hot. The fumes from the passing cars were giving him indigestion. And there was worse to follow. Huey saw the fluid leaking from his brakes, making a big slick on the pavement under his car. He did not have a spare tire in his trunk, and he did not have a spare tube either. What was he to do? He felt like committing suicide on the spot. His tire got completely flat. The fluid continued to run onto the pavement.

The fumes from the passing cars became more sickening; the pollution of the air near him was choking. Soon a policeman came by in his patrol car. He was off duty and he took Huey home. But he gave Huey a long lecture on keeping his tank full of fuel in the future. I hope Huey got back to his Mercury before some vandals got to it and started to take it apart and carry it away.

There is a rule in Ben's garage that nobody can smoke on the job. They are not allowed to play music, either, but one fellow brings a portable radio to work and hides it in a drawer of his bench. This fellow's name is Rudy. At seven-thirty every evening he becomes a student at a college near his home. There he takes classes in United States History, and music. He thinks that playing music on the radio hidden in his bench drawer will help him make a better mark in his college music class. The truth is that Rudy pays very little attention to his music; so he may do poorly at his job, and waste time, and not make good marks for his college classes either. The moral of this story is, Put your mind on one thing at a time.

Taxes and Time

The tax is not usually included in the price of a dinner; it is added. But, it is included in the price of gasoline. The service station usually has information on the pump on what proportion of the price of the gas is tax, however, Gasoline taxes provide money so the state can make thruways and super expressways and freeways. If the state reduces the tax on gas and other fuels, it will have to get funds somewhere else for making thruways.

We use many words for time -- seconds, minutes, days, weeks, months, years. Seven years are a lustrum. Ten years make a decade. A hundred years are a century. Ten centuries make a millenium. A human being, man, cannot expect to live a century, but some men do live that long. It tells us in the Bible that Methuselah lived to be 969 years old. That's nine centuries, six decades, and nine years. The Bible has no information on the exact time of day that Methuselah died.

54.5

The American Production System

I

Have you ever wondered why Americans have the best standard of living the world has ever seen? Has it ever occurred to you that the many goods and products which make life richer and more satisfying for us all are within the reach of almost everyone in our land? Chances are you have wondered over these facts. They happened neither by chance nor by luck.

We have more. The reason we have more is that we have discovered how to produce many things at prices that almost everybody can afford --

products that men want and purchase, like cars and appliances, lawnmowers and electric bulbs, toothbrushes and tractors, television sets and topcoats. Today most of us consider them necessary. They are made rapidly and efficiently in an endless variety of types, shapes, colors, and models. With no aid from production tools and methods, the mass manufacture of most of these products is impossible. Almost everybody can afford them today, and we hope to see the day when they will be within the reach of everybody.

Why?

Well, that's the fascinating story of modern mass production and the men who make it possible. No, it wasn't luck and it didn't happen in a day.

You need only visit a museum to see some of the things produced by oldtime craftsmen for the handful of men who were rich and had the money to pay for them. Coats of armor, hand-hammered and polished, took years to make. Well planned and properly constructed furniture was only for the aristocracy; others made their own. The log cabin is an example of how "do-it-yourself" became the rule when America was getting started. It was the way a man who wanted shelter had to get it -- possibly the only way.

Gradually production methods were worked out by craftsmen and their apprentices. But even this system did not begin to deal with the fast growing needs of the land, for each man had to be skilled so that he was able to do the entire job himself.

II

For instance, at the time of the Revolution, it took a good craftsman a number of days to make a single musket. He hand-fashioned each part separately, then carefully fitted them together for that one gun. The completed gun, or musket, may have fired accurately, but when parts became worn or broken there were no replacements. The gun was useless until a gunsmith made another part to match the broken or worn part. We think you will agree that it was an inefficient system. But a handful of smart men saw how to improve it remarkably. Eli Whitney was one of these smart men.

Perhaps Whitney is best remembered for his invention of the cotton gin. However, by making practical use of the fact that things like the same thing are the same as each other, he helped pioneer an even bigger contribution to progress. Whitney saw that the separate parts of muskets were generally alike. So he said to himself, "They can be made exactly alike and -- in fact -- interchangeable on lathes and metal cutters carefully planned and made to produce each one. Then the musket can be assembled by a number of workers whose skill in making the whole gun is limited. If the parts are all alike, the workers who put them together can easily be shown how to do that job, even if they are not very skillful. The guns will not be as expensive, and a larger number of them, in better condition, can be made in a week."

Close to the year 1800, under a government contract, Whitney "tooled up" and proceeded to make 10,000 muskets in a fraction of the time formerly needed to make the same number.

This was the first step -- the beginning of modern "mass production." It showed a way of directing the energy and ability of many men into productive channels. This system of making things has since become the basis of American industry. Today mass production feeds us, clothes us, shelters us, and makes it possible for us to move from place to place and to have more rewarding lives than ever before.

III

But Just What is Production Work?

Production work is an important part of the mass production system, and, just as in Whitney's time, it stresses the importance of men, of workers. It includes the many jobs done by men who are able to work with their hands. Mass production brings tools and men together--horsepower and manpower--to make useful products. Men who have the ability to make and assemble the huge number of products produced daily in America are called production workers.

Government figures show that there are more than 30,000 different kinds of jobs at which Americans can make their living. Some of these are production jobs. They can be located in hundreds and hundreds of factories and plants all over the nation. Generally they are listed in several very broad job classes, or families. That is, kinds of jobs in production work. One such kind or class of work deals with raw materials like metals, coal, and forest products. It consists of getting or gathering them, transporting them, and finally putting them into products that can be used in the home, by everybody. Another class of work includes the ability to make these materials into the parts needed by modern factories. Still another class of work uses men who assemble parts into whole products--motors, for example. Another class are the inspectors who check on the work and see that every part has been put in its proper place perfectly. And still another class of work is taking care of the plant or factory, keeping it clean and working properly. Some of these jobs mean working with power tools; some do not. Still others demand the use of hand tools. Others demand only good hands and the willingness to work hard.

The big car makers, like General Motors and Ford, hire many production men in their manufacturing and assembly divisions. These workers are called upon to perform many tasks that demand different degrees of concentration (that is, hard thinking), experience, and ability.

Just imagine the big job you'd have if you tried to make an Oldsmobile, say, by hand from the tires up. Even if you had a complete shop, with all the power tools, you'd be at the job for several years, and at a terrible cost. Yet today, a car leaves an assembly line almost every minute exactly as it was ordered--the correct model, the correct color, the correct trim, and the correct extras installed.

IV

So far, we have spoken mostly of some typical production jobs in a big modern manufacturing concern. There are other firms in trade and manufacturing that call for the same kinds of skills as those demanded by the car producing factories. For example, feeding America is no easy task. The food and drink processing industry uses very many men to operate its production lines. Clothing manufacturers also have widely taken up proper mass production methods for making the things we wear.

The railroad and trucking service industries, in fact, may be considered extensions--that is, parts at both ends of--of the nation's production lines. They carry a constant supply of raw materials and partly processed goods to production plants, and they carry the finished products away from them, to the stores that sell them to the consumer. They work on planned timetables. Transportation by water and air also is needed to keep goods flowing to those who will finally use them. Much of this work is done by men who help to load and unload ships and planes. It is done also by truck drivers, who daily move tons of goods over the roads from one part of the nation to another.

In addition, the service business offers a broad area of work for those who prefer to work in the open. Many men seek jobs as landscapers, lumbermen, drivers, porters, filling station attendants, farm hands, messengers, and deliverymen. Others like to work as part of a team making or repairing roads. Some choose jobs in a construction company where they can help in home and factory projects. A small number enter custodial work which deals with the maintenance of a factory and the land on which it stands. By maintenance we mean taking care of, cleaning, servicing, watching, and replacing lost or worn parts. These parts may be in the furnace, or the cooling system, or the water system, or the gates and fences, and so on. There are a very large number of things to be taken care of in a big factory. They also take care of the gardens and the lawns that we generally find today near a factory, unless the factory is in the center of a city.

The important thing to remember is that these jobs and hundreds like them bring good pay and security to those who are entering the world of work. It is up to each person to decide what his interests and ambitions are.

Much has been said and written of the chances for those still in school (special?) to go on with their educations and prepare themselves for special and difficult work. There are good and important jobs for them. Yet, America still needs those who like to work with their hands as well as with their brains. When you have got the job that is best for you, you will be sure that by doing honest, careful work you, too, are helping pur nation to grow and prosper. And you will be on the best road to a life that will be rewarded by a real sense of satisfaction in getting some good work done well. It has been said that working on a first-class production team can be one of life's finest adventures.

LESSON 55.0 ue as long u (ū), or as (o͞o)

blue
due
avenue
gruesome
true
hue
pursue
Sue
sue
rue
issue
argue
flue
glue
value
continue
cue
clue
Tuesday
revue

55.1 The "True-blue" Detective

A detective was looking for a clue to a murder. There was a suspect but no solid clue. On Tuesday the suspect had been seen going into the Blue Grotto, a dancing and drinking club. Later he was seen to come from the Club and get into his blue Chevvy and drive down Fifth Avenue in the direction of the Village. The detective was notified, and he decided to pursue the suspect. He did pursue him all the way down Manhattan to the Village.

There he asked some men on Fifth Avenue if they had seen a man in a blue Chevvy, and they told him that a man had parked such a car and run into a nearby bar. These men did not look completely trustworthy to the detective. He did not like the expressions on their faces, and so he was not sure that the suspect had really run into that bar.

Just then he had evidence that what the men had told him was not true. He saw the suspect's blue Chevvy turning the corner. He jumped back into his own car and continued to pursue the suspect farther down into the Village, all the way to Barrow Street and Sixth Avenue. There he discovered an apartment into which the suspect disappeared. He stationed himself in front of it to wait until the suspect came from the front door.

He waited a long time, and the suspect did not come into the Avenue.

There was now no clue as to where he had gone. All of a sudden the detective saw smoke coming from the flue of the chimney on top of the apartment. Since it was a warm summer day and the smoke came suddenly and was very black, the detective decided that somebody was burning something in the basement, and that he was burning it in a hurry, perhaps with kerosene.

He signalled to a cop he saw coming down the Avenue, and together they rushed into the basement. There the detective discovered that his suspicions were true. The suspect was in the basement burning some old dirty clothes in the furnace, as fast as he was able to stuff them in. It was clear that he was trying to get rid of evidence of his crime. The cop and the detective arrested him.

A week later, on a Tuesday afternoon, there was a ceremony at City Hall and the detective was given a decoration for his excellent work. He had arrested an important criminal. The officer in charge of his unit said, "You have given us extra value for your salary, and now we give you a raise in salary and a bonus, as well as a decoration."

The detective did not argue, but he felt lucky.

55.2 EXERCISES

Fill in the blanks with ue words.

1. A__________________murder had been committed.
2. On________________the suspect was spotted.
3. A detective tried to_____________the suspect.
4. The suspect had a______________Chevvy.
5. The detective chased the suspect to Sixth______________.
6. But there was no__________as to where he had gone.
7. Then out of a__________came some smoke.
8. The detective found the__________of that____________.
9. And so was settled the______________.
10. He got a raise, would you____________?

LESSON 56.0 ui as long u (ū), or as (o͞o)

suit	fruit	juice	cruise	bruise
recruit	pursuit	suitor	juicy	nuisance

suite (in certain cases pronounced with a long u)

56.1 ALMOST A LIMERICK

I'm now a recruit,
And wear my new suit,
For we know it will be a long cruise.
I ate too much fruit,
The cook's in pursuit,
He found me and I got a bruise.

56.2 SUIT

The word "suit" means a suit of clothes; or it means that something pleases, or fits, or fits in, or satisfies. We say, "The car suits me." We say, "This temperature suits me," and "She is very well suited for that job." We say that a man and a girl who marry and make a happy pair are well "suited" for each other. Any time you like a plan, an offer, or a deal, you may say, "That suits me fine."

SUITE

Another word almost like it is "suite," with an e on the end of it. Suite is said exactly like "sweet." It means a number of things that go together. For example, a number of rooms together, which they call an apartment in an apartment set-up, are called a suite in a hotel. If you take a living room, a bedroom, and a bath for the evening, the hotel will say that you are taking a suite of rooms. A set of furniture, like a sofa, a hassock, and a pair of easy chairs, will be spelled "suite," but the man in the furniture store will often call it a "so͞ot" and make it sound like "shoot."

A bed, a chest of drawers, and a chair or so for a bedroom will be called a suite, too, and said like "so͞ot" by the salesman. There is also a musical suite, which is a number of parts that go together but do not exactly make the same whole item. That is, a Sonata will have three movements, or parts; but a suite for violin and piano can have five or six or seven parts that are not very closely connected. Suite comes from a French word that means "to follow." The parts in a suite of music follow each other, one after the other, and that is the way they are connected, rather than by a musical theme.

EXERCISES

Write 3 short sentences. Write one for each of the two meanings of suit, and one using suite.

1. ______________________________

2. ______________________________

3. ______________________________

____

LESSON 57.0 ew as long u (ū), or as (o͞o)

few
dew
blew
jewel
mildew
Agnew
new
pew
view
Stewart
jeweler
brew
chew
drew
Lewis
review
sewage
stew
grew
clew
newspaper
flew
threw
screw
sewer
preview

57.1 A LIMERICK

There was a young man named Lew,
Who got himself into a stew,
He bought a new car,
That didn't go far,
Then he filled it with gas and it flew.

57.2 Past and Present Verb Forms

A verb is a word with action. It tells what is happening. The verb changes a bit when the action is past, present, or future.

There are five verbs with ew in the following article "Some Words are Verbs."

As you read the article:
1. Find any form of those verbs.
2. Look at the VERB CHART and see where it fits.
   (Try saying the sentence with that verb in the blank. This helps find where it fits.)
3. Write the verb on the line next to the sentence where it fits.

VERB CHART

Present (What you do today)

I__________very well.

____

He (or it)__________s very well.

____

Past -- 3 forms: (What you did yesterday or before)

I (he or it)______________(it) yesterday.

____

I have been }
He (or it) has been }______________(it) for years.

____

I have }
He (or it) has }________________(it) once or twice.

____

Some Words are Verbs

Words are ideas. If you have the word for something, you can speak of it. If you do not have the word, you can't say what you want to say on a problem or a topic. (A topic is a subject, something you speak about.) Some words have several different forms, and it's a big job to study all of the different forms of words in English.

Here we can discuss a few of them -- the verbs. Today the wind blows hard. Yesterday the wind blew hard. And if the wind has been blowing all week, you have another form of the verb blow. Still another form is used if you want to say that "The wind has blown like this all week." This is a different way of saying almost exactly the same thing you say when you say that the wind has been blowing like this all week. Let's look at another verb. I draw a picture. Yesterday I drew a picture. You can also say, "I have drawn several pictures this week." When you get bigger, you grow, but if you are speaking of the past, you say "I grew," as in the sentence, "When I was twelve, I grew six inches in a year." And if you are speaking of time that starts in the past and continues on up to the present, you say, "I have grown three inches during the past year."

Another verb which is like grow, grew, and grown is throw, threw, and thrown. You say, "I throw the ball at the wall." Yesterday you threw the ball at the wall; and if you have been doing it for some time, you can say, "I have thrown this ball at the wall for some time." You can also say, "I have been throwing this ball at the wall for some time." The last sentence puts emphasis on the action of throwing the ball. The verb "fly" has for its past tense the word flew. If someone has been flying for some time, you would say, "He has flown for some time: or "He has been flying for some time."

54.3 More About Production Work

If you are thinking of production work and are wondering whether or not you are suited for it, here are a few indicators that may help you decide.

1. Can you get along with others and work as part of a team? An ability to work with others is of first importance in most jobs, but it is even more important in production work. All corporations today compete with others making the same or similar products. This competition demands a team effort. The men must be willing to do their best possible work all the time.

2. Can you do work that demands a good deal of repetition? That is, can you perform the same operation over and over again and not lose interest? Most production men are able to develop a pace, a speed at their jobs that makes them more effective. The reason they become more effective is that they work along in this even pace and get a lot more done than men who work at an uneven pace, stopping, starting, going fast and then going slow for a while. In production work the story of the "Hare and the Turtle" makes good sense: slow and even gets there first. But in fact it is not slow. We may better say that "even" seems slow but is fast in the long run.

3. Do you prefer to work in one place rather than move from one place to another? Factory production work is confining. That is, it keeps you indoors, and it keeps you there for most of the day when you are working. Modern plants, however, are clean, safe, ventilated, and they are well lit. They provide an attractive setting for working men. Almost always they are

air-conditioned where the climate demands it.

4. Are you neat and dependable?
Needless delays result when workers are not orderly, tidy, and careful. A production plant has many different kinds of men and girls. Each one depends on many others to do their jobs properly. They say, "A chain is as strong as its weakest link." In many ways this is true of a production plant.

5. Do you have a positive attitude?
Most production men feel that any job worth doing is worth doing very well. They take pride in mastering the facts and methods connected with their job. They want to be absolutely "on top of their jobs."

6. Do you have a love for engines, motors, tools, and devices of all sorts? Most production men are aware of the importance of power tools of all sorts in their work and are careful not to abuse them. A successful production plant has to have its power tools and systems in good condition as well as skilled workers to run them.

7. Do you take satisfaction in doing a good job?
There is a big difference in doing a job well to meet a demand and doing it well just to please yourself. The best products are made by men who get a real, genuine satisfaction from the work they do. These are the men who make the best production team.

8. Can you see how you will fit into a large operating plan?
That is, can you see generally how doing a single job well adds to the total success of a production operation? Things produced in this way are only as good as the total excellence of each part that adds up to the whole product. The parts, the workmanship of each item add up to the excellence of the whole. Each production job exists only for its importance to the whole

finished product.

All good production workers can answer "yes" to these conditions. If you can too, chances are you will find becoming part of the production team interesting and rewarding. But, before you decide, be sure to visit some manufacturing plants. At the plant, they will show you through the factory and give you an excellent opportunity to observe the different types of production jobs that are available there. You can then see for yourself whether they look appealing and attractive to you.

Getting a Production Job

There are many places where you can get help in finding the best job for you--your teachers, your advisors, your parent, your pals, and others in business and industry. A good place to start is with your school advisor. He can give you an idea of the jobs that best fit your abilities and interests. (Many advisors keep a list of open positions that are near your home.) He can tell you what the legal age limits are for every job. He will be in contact with the state employment office, and he may be able to refer you directly to companies that have openings. He may also arrange for you to talk with some production workers. If so, find out what they do and how they like their jobs. You have much to gain from their experience.

It is possible that your school has a program in connection with local business and industrial firms. This makes it possible for students to study and get valuable part-time job experience during the regular school year. Your school advisor will be able to give you the details of this program and help you to find a position. Such work-study plans usually help those in school to gain an understanding of the working world and often can result in permanent work after graduation.

And, certainly, you can start your own job hunting program by ringing the doorbells of managers in your town. If you do this, be prepared to fill out an application form and speak with a company officer or representative. During this interview you will be expected to "sell" yourself. Be sure to have gathered some facts about the abilities this company looks for in its workers -- and be able to present all the facts about yourself that you can provide. Remember, the man who interviews you will appraise or evaluate you for your enthusiasm, training, and probable value to his business. The more useful information you can give him on yourself, the more favorable his feeling toward you is likely to be.

From time to time in your job-hunting program you may be stopped short by a poster that reads: NO HELP WANTED. Do not be too unhappy. This usually means that some regular workers at that plant have been "laid-off" for no weakness of their own, and no new men will be hired until the "lay-offs" are called back to work. Nevertheless, you can still ask for an interview, and perhaps fill-out an application for work on the chance that the plant will be hiring again soon. All big plants have a regular turnover of workers, and new jobs are always coming up.

The day you start work, you become part of an army of Americans who have chosen to work in the production area. You will be trained on the job by seasoned workmen or supervisors. This training may last a few days or for several weeks. When you master one job, you may be tried on others. As time passes you will gain confidence in your abilities. A willingness to work with others, to take directions, and an enthusiasm for the work will make you a valuable member of your company's production team. Many close relations with other workers will provide you with good chances to become a respected member of your town or community, and you can become interested and active in town affairs -- in town management, politics, government, or education.

And as soon as you are on the company's team, you are in line to begin to move up. You will also learn firsthand about the miracle of mass production as you see today's products improve and those of tomorrow introduced and developed. And, as part of the production team, you can be happy that you are having a hand in making the things that give shape to progress.

EXERCISES

Here is a list of things people can do, or like to do that are important for various jobs. There are three columns at the side. In the first column put a check if the item suits production people. In the second column put a check if the quality is essential to all jobs, and in the last column check the things that you like or things you can do.

	Production	All Jobs	Like Me
1. Has good typing skill.			
2. Can work with others.			
3. Likes to do things well.			
4. Likes to talk to people.			
5. Likes to work indoors.			
6. Likes to do a good job.			
7. Can write well.			
8. Is neat and tidy.			
9. Feels his part is important			
10. Can tell other people what to do.			
11. Likes to work outdoors.			
12. Can use tools well.			
13. Is a good driver.			
14. Likes to work alone.			
15. Likes to work in one place.			
16. Can do one small job over and over.			

	Prodtion	All jobs	Like me
17. Likes to work hard only during rush time.			
18. Can work at an even pace.			
19. Likes to do things for other people.			
20. Tries hard to find a good job.			

LESSON 58.0 ou -- has 5 different sounds

(Here we come to one of the very irregular spellings, spellings for which you have to know the word in order to pronounce it correctly. The spelling does not tell you faithfully. There are four main sounds spelled by the ou, and one more minor one that is also very common.)

58.1 ou as in out: (one of the ow sounds)

out
found
bound
couch
around
trout
bout
dismount
council
our

shout
mouse
round
mound
about
shout
ounce
clout
counsel
scour

house
noun
proud
ground
flour
stout
bounce
flounder
bounty
pout

sour
pound
pouch
count
blouse
foul
crouch
foundry
louse
pounce

loud
sound
cloud
mount
spout
mouth
south
boundary
hound
wound

58.2 ou as in soup: (sound of o͞o in moon)

soup
wound
coupon

tour
croup
Louis

your
Boulevard
Louisiana

route
Louise
louver

rouge
coupe
group

58.3 ou as in four: (ō, or ô)

four
pour
fourth

soul
shoulder
source

course
boulder
mould

mourn
poultry

court
fourteen

58.4 ou as in up: (ŭ)

touch
southern
trouble
country
couple
cousin
double
Douglas
young

58.5 ou with r as er:

courage
encourage
bourbon
flourish
nourish
journal
courtesy
journey
discourage

58.6 one and once

58.7 Spelling English Words is not Easy

Since this is a course in reading, it may be interesting here for you to read something about the words in this big lesson on ou, and perhaps especially something about why our language has so many words that are spelled in ways that do not at first glance seem to make very much sense. We say, "at first glance," but in fact some spellings don't make sense to many of us after a large number of glances.

Many people have trouble getting started reading English just because so many of the spellings are so strange, and they become confused. In the system used in this program that you have been studying, we have begun with simple spellings so that you got the regular system of spelling -- that is, of representing sounds with an alphabet -- before you were confused with odd and strange spellings. In the last few lessons you have begun to go into the difficult spellings. You have seen that we have at least four ways of spelling the long u sound, as in words like tube, blue, suit, and few. And now we have a lesson where the spelling ou indicates five different sounds! Is this a good idea? Is it a good way to write English?

Many students have argued that we must simplify our spelling, so that a letter always stands for the same sound -- and for only a single sound. Why not? Who can argue against such a sensible proposition? Well, an army of English experts do. Their reasoning is simply this: English has been spoken for a long time, for almost two thousand years. During that time there have been many changes in the way it has been pronounced. The spellings have not been revised or made up-to-date as fast as these changes in pronunciation have taken place. To put it more simply: we spell sounds that we no longer say. For example, the word for the time of day after dark is pronounced "nite." It's a word we all use hundred of times. But this word is spelled "night"! Why? Because it used to be pronounced with a sort of g sound in the middle of it. That sound disappeared, but the spelling is still there.

There are several other words with the same spelling as "night," pronounced the same way, that we will present to you a bit later in this program. For another example of lost sounds, the word for the bump on your leg that bends, just midway between your foot and your waist or hip, which we pronounce "nee," is spelled "knee" because it used to have a k sound at the beginning. The word "sound," which we have just learned to spell, is really a pair of words that over the course of a thousand years have come to have the same spelling and pronunciation. Sound means a bang, or a racket, something that you hear. It also means strong, healthy, or firm. Both of these meanings are very familiar to all of us. A thousand years ago they were different words, a French word and a German word!

By the same process of change over the years it has come about that, sometimes, as many as three words have the same pronunciation but different spellings and meanings. Pare means to peel, usually with a blade of some sort. A pear is a fruit. A pair is a couple. These words all sound the same, and we cannot tell them apart by ear. We have to see them in print. So the odd spellings serve a useful purpose. For another sort of problem, look at wound. If you pronounce it with the o͞o sound as in moon, it means an injury, usually an injury inflicted by a gun or a blade. If you pronounce it with the ow sound as in cow, it means twisted around, as "The string was wound around the spool." So for this word hearing is better than seeing. If we spelled wound as woond and wownd, how easy to tell them apart! But we are lucky to have three spellings of pare - pair - pear.

There are a couple of arguments against making our spelling simple and regular. One is what we have been discussing here -- the advantages of the irregular spellings. The second is the fact that hundreds of thousands of printed books use the present spellings. If our spelling is made simple and consistent, who will, in a few years, be able to read all the old books? Perhaps nobody. That is not to be allowed!

58.8 A Council may give good Counsel

A large group of men from Louisiana went on a tour to a country across the sea. Because they were a group, they got a discount of fourteen percent on the base price. They also had coupons that enabled them to buy goods cheaply. They scoured the shops looking for things at low prices, and when they got home they did not have courage to show their purchases to their wives because they had got things because they were cheap rather than because they were useful. A wife said, "It's better to pay double the price for something you need than to pay a fourth the price for something that will spend the rest of its life on a shelf gathering dust." Such counsel was not welcome, after the fact. A family council before the trip may have done better at saving family money and family pride.

(A council is a gathering of men in a body that makes decisions or conducts business. The word counsel means advice.)

More About Words

"Luft" is like "lift" and means fly.
"Hansa" is like "house" and is a company.

If you fly on the main German airline, you will be flying on Lufthansa, which means "sky company." If you travel in Denmark, Norway, and Sweden, you will see very old wooden storehouses, some of them nearly a thousand years old, that used to belong to the Hanseatic League. League is the same word that we have in American League or National League, with the ue on the end not pronounced. Notice that Han-se-a-tic begins with the same word, hansa, that ends the name Lufthansa. It means company. The Hanseatic League was a league, or union of trading towns, in the Middle Ages about nine hundred years ago. Thus you see that words carry a lot of history with them. Every word has a history of change and travel. You can study words for a lifetime.

Many places in the World have been named after famous men. You have probably been told that our country, America, got its name from an Italian sailor named Amerigo Vespucci, who sailed around the world more than a hundred years after Columbus discovered our continent. We also sometimes call America, Columbia. Several towns in America are named Columbus.

LESSON 59.0 The sound ẽr (under) spelled: er, ar, ir, or, and ur

59.1 er

her
roaster
liner
letter
mister

shopper
tipper
stopper
copper

rider
boaster
joker
under
sister

dipper
digger
chopper
slapper

maker
sober
shaper
never
better

platter
planner
dipper
over

finer
corner
trader
finger
winter

robber
rubber
thinner
butter

toaster
dinner
miner
supper
summer

clipper
swimmer
spinner
herd

59.2 ar as er

tartar
grammar

collar
beggar

dollar
cedar

sugar
standard

popular
standard

usually ar has the sound in

car
far
dart
depart

mar
bar
part
chart

tar
cart
start
smart

59.3 ir as er

sir
chirp
first

stir
thirst
firm

third
dirt
birth

skirt
fir
flirt

shirt
girl
mirth

59.4 or as er

tailor
worm
doctor
error
tremor

sailor
worth
flavor
conductor
vapor

work
worse
mirror
clamor
labor

world
actor
traitor
ivory

word
harbor
parlor
juror

59.5 ur as er

fur
Curb
purple
curtain
Burton
burn
curve
lurk
purchase
furtive
turn
curl
Turk
turnip
churn
purr
hurl
Turkey
currant
hurt
purse
murder
purpose
surf

59.6 Stories About the Word "Tartar"

The word tartar has many meanings. First, a Tartar was a member of a Turkish or Mongol tribe that overran Asia during the Middle Ages. A Tartar today probably lives in the Soviet Union. Tartary is the part of Asia that the old Tartars settled in the old days. Today there is a Chinese Tartary that is near Tibet. It is very rugged country, full of rocks and robbers. It has passes that are thousands of feet above sea level. Since the Tartars were so savage and brutal in battle, the word tartar today often means any person who is very hard to deal with or to get along with.

But we are not finished with tartar. Cream of tartar is a white powder used in baking powder to make pastry or bread rise, so that when it has been baked it will be fluffy and airy and good to eat. There is another meaning: a tartar. A girl who is sharp and hard to get along with -- a girl with a bad temper and a cold spirit can be called a tartar. Tartar is also, a hard brownish stuff that forms on our teeth and has to be scraped away once or twice a year by a dentist or his assistant. And for one more meaning--tartar is deposited by wines as they are fermenting. It comes first as a yellowish substance called argol. When the argol is cleaned and purified, it is cream of tartar. It used to be said that it was crystals of this tartar that formed on the teeth. When we come to the lessons that present some new spellings, we will tell you about tartar sauce and tartar steak. All of these meanings come from the pair of basic meanings we have described. One is the tribe from Asia. The other is the white powder that is purified from the argol deposited by a wine while it is fermenting.

59.7 EXERCISES # 1

(Circle words with the er sound)

1. The vapor from the carburetor curled out over the hood of the Camaro.
2. The actor played the part of a traitor. They performed the play in the parlor.
3. Must a girl with a short skirt be called a flirt?
4. Bert always stirred his coke to get rid of the bubbles, even when he was very thirsty.
5. When Bernard saw that his dog had worms, he called the dog doctor, who is a veterinarian, to ask for the medicine. The veterinarian charged him three dollars for the medicine. Bernard concluded that he worked as hard for his dog as his dog worked for him. Bernard dug down deep into his purse for that three dollars.
6. The sailor wondered whether the flavor was worth the dollar that he paid for the dessert. It was also full of sugar, and when he got fat his collar got too small and he had to buy another shirt. So the first error led to worse and worse troubles. The solution was not to purchase a sugary dessert after a big meal, flavor or no flavor.

59.8 What is a Motor Tune-up?

Jack Benson works as a tune-up man in a garage connected with an Oldsmobile dealer's. He is an expert on the parts of a car that have to be adjusted often to make the car run well. He has studied spark plugs, distributors, and carburetors. These are the parts that the tune-up man has to work with.

Probably the first thing Jack looks at is the spark plugs. He takes them out of the top of the engine with a tool that is used only for that particular purpose. It has a socket on the end of a long rod. It can reach far down into the engine, where the plugs are, and the socket fits over the plug and makes it turn and unscrew. Jack takes out one or two plugs to see if they are burned -- that is, burned down too far at the metal ends or contacts -- or if they show that the engine is burning too much of its lubricant. He also has to see whether the plugs have the proper gap, that is, the proper space or distance between their metal ends. This gap is where the spark jumps and makes the gas in the combustion chamber burn or explode and drive the piston down. It drives the piston down by the expansion of the burning gas.

If the plugs are too worn, or if he finds that the compression in the combustion chamber is leaking out by cracks in them, he replaces them with new plugs. If they are not badly worn, he puts them in a small gadget that forces sand against the metal contacts. The sand blasts the metal ends until they are clean. Then he adjusts the gaps, with a feeler gauge*, until they are exactly correct -- usually about twenty-six thousandths of an inch (.026"). Then they will give the correct amount of spark to fire the gasoline.

Jack's next job is to examine the distributor. This is a plastic cylinder beside the engine block that is about three inches in diameter. It has an arm inside it, about two inches long, that turns on a shaft that comes up from below. The arm is also plastic. It has a small, hard metal spot on its under side. As it turns, the metal spot makes contact with little metal spots on the body or floor of the distributor, and this contact is what sends a spurt of electric power to one of the spark plugs. The electricity then jumps the gap in the plug and the spark makes the gasoline in the combustion chamber burn. So to check the distributor Jack has to make sure that the metal contacts in it are clean, are not pitted or scarred, and are under just the correct pressure from a little spring so that they will touch as the arm whirls around.

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* The au in gauge is pronounced ā.

In connection with the distributor, Jack checks the timing. Timing is very important for a car. It controls the time when the spark flashes in the combustion chamber in relation to the position of the piston. As the piston comes up, it compresses the vaporized gasoline in the chamber above it. The spark has to flash at the exact moment when it will explode the gasoline to give the most downward thrust to the piston. If the piston is too far below the top of its movement, the explosion will slow its upward movement, rather than give it a strong power-thrust downwards. If the piston has reached the top of its movement and started back down again before the explosion, much force will be lost as there will be less expansion of the gas as it burns -- and also for the reason that the force of the explosion will not be applied to the piston during its entire downward stroke.

So the timing is set to make the spark jump at exactly the proper moment. Jack of course has an instrument that tells him how to set the timing. The distributor is usually turned by a gear on the cam shaft. The cam shaft is a sort of axle (like the crankshaft) that has cams attached to it to lift the valves. Each cylinder in a regular engine has two valves -- one for intake and one for outlet. That is, one lets the gasoline into the combustion chamber, and the other opens to let the burnt gas escape out by the manifold, the tail pipe, and the muffler. Now, these valves are held closed by strong springs, and they are lifted by the cams on the cam shaft. The cams are oval-shaped, and they raise and lower the valves as they turn under the valve stem. Hot rodders, by the way, do all sorts of things to make their cam shafts open and close the valves wider and faster, for more power. Some engines have the camshaft in the engine head. These are called "overhead camshafts."

Now, since the camshaft controls the time when the valves open in relation to the position of the piston in each cylinder, it also controls the turning of the distributor arm, so that the sparks will come at exactly the correct instant for each cylinder.

Jack Benson adjusts the timing by adjusting the connection between the distributor and the shaft that turns the arm in it. He makes this adjustment, in fact, by turning the body of the distributor and then turning a nut or screw down hard to keep it in place and not let it slip.

Jack's last job in tune-up is to adjust the carburetor. For some cars he adjusts only the idling speed. Some V-8 engines have 4-barrel carburetors. Other cars have as many as four different carburetors. These have to be synchronized so that each one gives exactly the same amount of gas to its cylinders. The job of synchronizing several carburetors is pretty complicated. Jack had to study a manual and hear several lectures before he was able to do it perfectly. If the carbs are properly synchronized, the motor will idle and run smoothly. If they are not, it will go bumpily or irregularly. The British call a bumpy idle "a lumpy tickover."

59.9 EXERCISES # 2

Put words in the blanks with "er" sounds

1. Gas in the combustion__________has to_________to drive the piston down.
2. Spark plugs need the__________gap for the spark to jump.
3. The spark is timed by a part called the __________________.

4. If the timing is off, the piston will not get a full ________ thrust.

5. There are 2 valves in each ________ of a __________ engine.

6. The __________ gas goes out one valve, through the manifold, tail pipe, and the ______________.

7. There are screws in the ___________ to adjust the idling speed.

8. It takes a lot of practice to tune an engine ______________.

LESSON 60.0 eau as long u (ū)

beauty beautiful beautify
beautifier beauteous beautician

eau as long o (ō)

beau bureau

60.1 France Gave us the "EAU"

Lewis flew over the beautiful blue valley as he was training to be a pilot. The beauty of the morning pleased him. He was training to become an airline pilot. Pilots for the airlines used to come from the Air Force, but now they are mostly trained by the airlines. Today a pilot can be trained to fly a big jet when he is still much younger than thirty. Lewis was flying over a town named Beaulieu. The name is pronounced just as if it were spelled "Bewley." It means "beautiful place" in French. The word beauty also comes from a French word. The French invaded England in 1066 and put their king on the English throne. For more than two hundred years French was spoken in the English court and by those who practiced law and ran the government. During that time hundreds and hundreds of French words were taken into the English vocabulary (vocabulary means all the words of the language), and they are there still; today we use them without thinking that they are from France originally.

Analyzing a Beautiful Car

Another Lewis -- Lewis Bewley -- was training to be a car diagnostician. He believed that the motor was the most beautiful part of a beautiful car. He believed that the best beauty of such a car came when its motor was running perfectly.

There was a time, years ago, when the repair man just listened to a motor (or perhaps drove it around the block a few times) and was able to tell what needed to be done to it. Today it a very different story. The diagnostician has a big cabinet of electric instruments, with dials and gauges, wires, clips, sockets, and probes. With these he tests every part of the motor and gear train and reads the diagnosis on the gauges and dials. He has to go to some classes and read several manuals in order to understand just how he is to use his diagnostic instruments.

It is also possible to analyze a motor by taking the used lubricant out and making various checks and tests on it. You can, with the proper instruments, tell whether there are metal chips or filings in it, how much carbon and dirt it contains, and what sort of vapors from the exploding gasoline it has absorbed.

These results can tell a lot about the condition of the engine, so that the diagnostician can tell other men in the garage just what has to be done. He may also, first, tell the foreman what has to be done and how much the job will cost. The foreman can then discuss the job with the customer and get his approval before the work is started. It can save a lot of trouble and even argument and bad feeling if the customer is told exactly what has to be done and how much it will cost. It is a big advantage to the garage to be able to tell the customer all this without having to take the engine apart to look into it first.

60.2 Review EXERCISES

The three sounds, $\bar{u}$, er, $\overline{oo}$ are spelled in many different ways. See if you can remember some words for each of the ways they can be spelled. Write as many words in the spaces as you can. Do all of the sounds. Then look in Lessons 51-60 if you couldn't think of words for some spellings.

$\bar{u}$ ("you") __________

u ____________________________________

ue ____________________________________

ew ____________________________________

iew ____________________________________

eau ____________________________________

er (under) __________

er ____________________________________

ar ____________________________________

ir ____________________________________

or ____________________________________

ur ____________________________________

our ____________________________________

$\overline{oo}$ (tool) __________

oo ____________________________________

u ____________________________________

ui ____________________________________

ew ____________________________________

ue ____________________________________

o ____________________________________

Note: (To and move have the $\overline{oo}$ sound. Can you think of others?) To, too, and two, all sound alike but have different meanings: I am going to town to buy two pencils that are not too expensive.

LESSON 61.0 Qu qu (kw or cw sound) q̲ is always followed by u̲

quick
squeal
equality
quiet
quote
acquire
acquaint
qualify
Quebec
quote

quack
squeak
equals
quarter
require
quartermaster
acquisition
quality
query
quorum

quake
squawk
quit
quill
request
quench
inquisitive
qualification
queer
quota

quart
squaw
queen
quirt
quarrel
question
Quaker
quicksand
quiver

squint
equal
quite
quantity
quintuplet
quickly
quarterback
quarry
quilt
square

61.1

1. To quiver means to shake, vibrate, or tremble. A quiver is a case for carrying arrows. The quiver is usually slung over the man's back by a strap.
2. A pair of very common words beginning with qu̲ are quality and quantity.
3. A man who is quick to quarrel may be kept quiet if he is requested to think before he strikes.
4. A squeaky wheel needs grease. In fact, by the time it squeaks, it has needed grease for quite a while. To stop the squeak and make the wheel run quietly, you may pack in grease or squirt in a lubricant under pressure. If it is dry, it will require quite a quantity of lubricant.
5. That service station attendant quits work at five o'clock. He is a quiet man, but he is well qualified for his job. He replies to the customers' questions quickly and politely, and he can quote the price of any item that is for sale there. When it comes to changing a tire, he is more than equal to the manager in quickness and care.
6. In the Army, the quartermaster is the man in charge of supplies. He has everything the men require, and in large quantity.
7. Quebec is a city in the province of Quebec, in Canada. They speak mostly French in Quebec. They speak English in the rest of Canada.
8. Quaker State Motor Lubricant comes from Pennsylvania. It is called the Quaker State after William Penn, who was its founder, about two hundred years ago, and who was a Quaker. The Quakers are a protestant religious group.
9. A quorum is the number of members of any group -- a club, a congress, a legislature, a senate -- that has to be present before

there can be a vote. Usually a quorum is a majority, that is, if there are a hundred members in the group, a quorum will be fifty-one. But any group can make its own rules for a quorum.

Quality Control

"Quality control" is a term that really means inspection. In Europe generally, the word "control" means inspect. We have taken over the term quality control from Europe, but other uses of the word "control" make for confusion and misunderstanding. When the Russians hear us speak of "arms control," they often think we are speaking of inspection rather than regulation. And when they say "control," we think they mean regulate.

The misunderstanding is of course a matter of emphasis or stress. That is, it's a question of understanding just what you mean when you say "quality control"; for the fact is that inspection leads to regulation. It intends to regulate. Otherwise why inspect?

The car factories have many many inspectors whose job is to see that the standards set for the finished car have been satisfied. They examine and test every part of the car -- engine, transmission, springs, wheels, body, wiring, paint, fabrics, trim, and so on -- and they do this to see whether the part satisfies the standards that have been set for it. If it does not, the inspector puts a special mark on the part. Then either the whole car is sent back, or the part is taken off and replaced, or a special worker comes and repairs or replaces it.

Most parts of a finished car have been inspected, often several times, before the car is assembled. But then the assembly -- that is, the part in place and all the parts in place -- has to be inspected and tested and inspected again.

And yet with all that quality control, we often read in the newspapers that a manufacturer has had to "recall" hundreds or even thousands of cars when a defective or imperfect part has been discovered after the car was sold and delivered and used by the buyers. If the manufacturer does not recall the cars and have them repaired, there will be accidents and the company will be sued for damages, and the model will get a bad name and nobody will buy it. But when the manufacturer does recall and repair those thousands of cars, it costs him a lot of money too.

Most of these problems occur as a result of the American requirement of having new models every year -- and big changes in models every three years. So much has to be done in planning a new model -- every part has to be planned and drawn and tried and tested, and then tested again. And the assembly adds quite a number of new problems. And it all has to be done quickly, as they work against time. No wonder there are "bugs" in a new model -- and often quantities of bugs. Yet a car sells for its quality, and a new model is supposed to be of better quality than the old models. It's quite a problem for the manufacturers.

You can see that the job of the inspector is equal in importance to any other job that is required in the production of cars. Work that has to be done over again is work, time, and money lost. The inspector can help prevent such losses. He can be very valuable.

61.2

EXERCISES

1. Three meanings for quiver are: ________, ________ and ________. (see paragraph one in your reading exercises for the correct answer.)

2. Two common words beginning with qu are: ________ and ________. (see paragraph two)

3. A dry wheel may require quite a quantity of ________. (see paragraph three)

4. The man (in the army) in charge of supplies is called the ________. (see six)

5. __________ is a city in Canada where French is spoken.
(see seven)

6. A motor lubricant from Pennsylvania is ______________ state.
(see eight)

7. In congress, a __________ has to be present before there can be a vote.
(see nine)

8. In your own words, write a definition of quality control. (check your definition by reading again the section on quality control.)

____

____

____

____

____

LESSON 62.0 Z z

1	2	3	4	5
zip code	zero	zone	fuzz	fizz
buzz	blaze	graze	lazy	crazy
jazz	cozy	pretzel	bazooka	azure
maze	amaze	lizard	Simonize	crystallize
zoo	zebra	zap	dazzle	dazzling
razz	daze	dazed	gaze	Cazzie Russell
freeze	zinc	zig-zag	zest	Zenith
Zurich	Azalia	zipper	zeal	zephyr
zing	zoom lens	wizard	size	sizzle
drizzle	swizzle	adaze	ooze	booze

62.1 The Metric System

The centigrade system for temperature is part of a larger system of measurement called the metric system. In it everything is divided or multiplied by tens and hundreds. The standard unit of distance is a meter (about 39 inches). A hundred centimeters make a meter (an inch is about 2 1/2 centimeters). A thousand meters make a kilometer (six-tenths of a mile). A cubic centimeter of water makes a gram on a scale. A thousand grams is a kilogram (a little more than two pounds). A thousand cubic centimeters makes a liter (pronounced lē ter, which is a bit more than an American quart).

This whole system makes more sense -- it is easier to use -- than our system of twelve inches in a foot, three feet in a yard, sixteen ounces in a pound, and thirty-two ounces liquid in a quart! The metric system is used in Europe, and it is also very generally used in scientific measurements and in scientific laboratories in the United States.

Increasing numbers of measurements on cars are today made by the metric system. A car worker must understand it to some extent at least. It is possible that the United States will change over to the metric system some time in the future. The British are in the process of giving up the system of pounds, inches, and ounces for the metric system; and when they do it will leave the United States almost alone in the world.

Let's see what happens. When you have grown up and lived all your life with a feeling for what a mile is, it is very hard to change and try to think about distance in kilometers (.6 mile). But a meter is just a little longer than a yard; and a liter is just a bit more than a quart. We can live with them if we have to.

Temperatures and Air-Cooled Engines

"How many degrees below freezing is zero?" Joe asked his boss. The boss replied, "It depends on what scale you are using. For the American and English system, called Fahrenheit, (pronounced faren-hite) zero is thirty-two degrees below freezing. In the centigrade system, which is used generally in Europe, zero is freezing."

Then Joe asked again, "How about temperatures below zero? How do you compare them in the two systems?"

His boss said, "That's not quite so simple; but five degrees centigrade are equal to nine degrees Fahrenheit. Fifty degrees below freezing in Centigrade will be fifty degrees below zero on the Centigrade scale. The same temperature in Fahrenheit will be nine-fifths times fifty, which is, of course, ninety, plus the thirty-two degrees that freezing is above zero on the Fahrenheit scale. So the correct figure will be 122 degrees below freezing."

One hundred twenty-two degrees below freezing in Fahrenheit is ninety degrees below zero on the Fahrenheit scale. Zero Fahrenheit is how many degrees below zero in centigrade? It is only about eighteen degrees in centigrade. All this may be checked fairly easily with a pencil and paper. You really have to have the figures down before you to understand it. An easy way is to draw a thermometer, with zero to 100 as the centigrade scale; right beside it draw another, with 32 to 212 as the scale. Water boils at 100 Centigrade, and 212 Fahrenheit.

Water freezes at 32 degrees Fahrenheit. Other liquids freeze at higher and lower temperatures. Alcohol freezes at a much lower temperature, alcohol was once used as anti-freeze. But there is a problem about alcohol. When it gets hot, it turns to vapor (like steam) at a much lower temperature than water. So when the engine gets a little hot, alcohol anti-freeze evaporates; that is, it turns into a vapor or gas, and goes off into the air. So you have to buy some more. We used to see cars on the first warm days of spring stopped by the roadside with jets of steam rising into the air, and the motorist standing by with a puzzled look on his face. At the first trace of a warm day, the anti-freeze turned into vapor and was gone off into the air.

Now the big companies have developed a number of different anti-freeze liquids that do not vaporize when the weather turns a bit warm. In fact, these new anti-freezes can be kept in the radiator all summer. They also have additives that keep the cooling system clean and free from rust.

Another way to beat the problem of losing anti-freeze is to have an air-cooled engine. Air cooling is possible when the cylinders of the motor have metal vanes, that is, thin strips of metal that expose a lot of surface to the air so that the heat of the engine can escape rapidly. Air-cooled engines usually have strong fans to carry the heat away quickly, too. Many years ago, there was an American air-cooled car named a Franklin. Today the best known air-cooled cars are the German Volkswagen (pronounced

Fokes-vagen) and the Porsche (pronounced Por-sha). General Motors in America sold an air-cooled car called a Corvair for a number of years, but they stopped making it about 1968. The trouble was not with the air-cooling but with the suspension and cornering. It was a small size, called a compact. Like the Volkswagen and Porsche, the Corvair had its motor in the back. The trunk for baggage and tools is in the front, in such cars, where you expect to find the motor. Some persons lifted the hoods of their cars and were surprised to see that their motor was gone.

The Lady's V-W

There is a story about a lady who had a new Volkswagen. It stopped one day, and she opened the hood to look at the engine. She was standing there staring into the empty space, when another lady came along, also in a new Volkswagen. She stopped and asked the first lady what was the matter. The first lady said, "Well, you may find it hard to ~~(believe)~~ think that what I am saying is true, but I assure you that I am telling the truth. I have lost my engine!"

The second lady was not surprised at all. "That must happen quite often," she said. "They have put a second engine in my trunk, and you can have it if you can just find somebody to install it for you. But be sure to have him put it in carefully, so that it will not drop out again when you hit a bump. I suppose that is what happened to your first engine."

62.2 EXERCISES

1. Temperature is measured in the United States by the ________ scale. In Europe, the ________ scale is used. (see first paragraph on "Temperatures and Air-Cooled Engines.
2. Why is alcohol a poor anti-freeze for a car's engine? When alcohol gets hot, it turns to ________. (see second paragraph on "Temperature and Air-Cooled Engines.")
3. Name two of the best known cars with air-cooled engines. (see last paragraph on "Temperature and Air-Cooled Engines.")

   ____

   ____

Read the following paragraphs and circle each word with a z in it.

1. Automobile lamps that are not correctly focussed can shine directly into the face of an oncoming motorist and dazzle him. Many accidents used to occur for this reason, before we had sealed-beam lamps and regular inspections.

2. A liquid oozes when it moves very slowly, usually in a small space. The grease in wheels, transmissions, and differentials seems to ooze out very slowly, unless there is a leak and it goes faster.

3. It's hard to work outdoors in a slow, drizzling rain. We prefer to have an azure blue sky and a warm sun. After the drizzle and cold of February and March, spring comes and the azaleas bloom. They have beautiful reddish-orange blossoms. Little lizards come out and lie in the sun. Soft breezes, called zephrys, blow over the land. Workers get over spring fever and have zest and zeal. They continue to feel that way until the sun gets sizzling hot, later in the summer, and then they may turn a bit lazy and long for a vacation.

4. My son Alfred was absolutely amazed to see the wizard pull a full-sized rabbit out of a shiny black top hat. He guzzled his coke, gobbled his

pretzels, and gazed at the wizard as if he was going to eat him up -- or as if he was a zoom lens that was going to zero in on that wizard and discover how he did such a trick. But the wizard was too quick. He had a way of giving a speech about what he was doing that had the effect of taking Alfred's attention away from his hands. The wizard had a pretty assistant. He said her name was Zoe. He pronounced it Zo-ey. She was so pretty that the men all looked at her and so made it easier for the wizard to fool them with his tricks.

5. If you park your car in a no-parking zone, you are likely to get a ticket. The policeman calls a ticket a "summons." He has been told to use the longer word. It sounds more impressive and important. It is not really very much longer, but it is less common. We don't want to muzzle a policeman if he wants to use longer words. That word, muzzle, by the way, has more than one meaning. It means a sort of cage that is put over the mouth of a dog to keep him from biting strangers. It also means the end of the barrel of a pistol or rifle, where the bullet comes out. Muzzle also means the whole front of a dog's face; that is, his mouth, jaws, and nose. When you muzzle a dog, then, you cover his muzzle with a metal cage or with straps, so that he cannot bite. When you keep somebody from speaking freely, you can be said to muzzle him. This of course is done by law or by a rule, rather than with the kind of real muzzle that you use on a dog.

6. When you are dozing in the sun, you can be described as having a snooze.

7. Between the muzzle of a gun, or firearm, and the nozzle of a hose, we have invented the slang word schnozzle (or shnozzle) for a person's nose.

LESSON 63.0 au (ô)

cause
daub
maul
taut
launder
saunter
laurel
because
gaudy
gauze
pause
laundry
jaunt
sauce
daunt
haunt
launch
assault
jaunty
fault
saucer
faucet
gaunt
haunch
caul
automobile
Paul
taunt
vault
paunch
haul

63.1 Understanding Words

1. Cause

When we tell or explain why something happened, we give the cause of the happening. In explaining the cause, we say, "It happened because --." For example, the officer asks, "What was the cause of the accident?"

The witness replies, "The accident occurred because the driver of the beautiful little blue Cutlass did not stop for the red signal. He kept on going after the signal changed color from green to red."

In some cases it is not so easy to explain the cause of an incident, event, occurrence, or happening. Suppose a flower pot falls off a balcony and hits a man so hard that it injures him. What is the cause of his injury? Is it the law of gravity, that made the pot fall faster and faster? Is it because somebody on the balcony pushed the pot by accident? And if he did push it by accident, did it fall because the man was not paying attention? Or did the man get hit by the pot because he happened to be just where it was falling at the exact moment when it fell? Suppose the man who was hit was running? Can we say that he was hit by the pot because he was hurrying to meet his wife? And if he was hurrying because his wife had a bad temper and he did not want to be late? Can we say he was hit by the pot because his wife had a bad temper? Suppose he paused just an instant to look at a shiny automobile going in the other direction. Can we say he was hit because, in spite of being afraid of his wife, he liked shiny new automobiles? Whose fault was the accident? What caused it? Obviously a large number of different things are connected with any event that happens. You can even say the man was hit because he was born, and from there you can go on forever. Let's stop this while there is still time.

The important thing to remember, when you are speaking about causes, is that you are looking for the particular cause that you can do something about. For example, if an automobile is overheated because it has no water, the garage man has two particular causes to think about and deal with. The first is to find and repair the leak that caused the water to escape. The second is to refill the radiator with water, for it was the absence of the water that caused the engine to overheat. What caused the leak in the radiator is not so important to him. Whether somebody punched a hole in the radiator, or whether the metal was not as thick as was desirable, and so rusted or corroded, does not affect the fact that the repair man has to fix the hole before he refills the radiator with water.

2. Tartar

Back when we were discussing the word "tartar," it was too soon to tell you that tartar sauce is made of dressing (may-on-naise) and pickles and seasonings and is usually used to season seafood. It is very popular with fried scallops. It is also good on sole or flounder. It is likely to be served in a little saucer, or in a small cup. A saucer usually goes under a cup, but not always. In fact, a saucer got its name because it was used to serve sauce. How the name got limited to what goes under a cup is a question. It is even something of a problem, if you are interested in how words grow and change.

3. Haunch

Haunch is a word for hip or thigh. A leg of deer meat is called a haunch of venison.

4. Launch

Launch is both a verb and a noun. As a verb it means to set in motion. A ship is launched when it is put into the water for the first time. We also speak of launching a project, a business, or an enterprise. We can launch a space ship into orbit. As a noun, the most common meaning of launch is a power boat, and most often it describes a power boat, that takes sailors from the dock out to a big ship that is moored out in a bay or harbor. Large power or sailing boats will have a launch on deck or towed along behind.

Some Comments About Paul

Paul hired a U-Haul trailer to haul his furniture to his new apartment. On the way he stopped at the hardware store to buy a washer for the faucet, which was dripping. It was the faucet down in the laundry, in fact, where it got some hard use. In addition to fixing a faucet, Paul was an athlete. In school he had been a pole-vaulter. His record was thirteen feet. Now that he was out of school, he only vaulted over the back fence. He did this by putting his hand on top of the fence and pushing with his arm as he jumped up and over. It was less exciting but a lot safer than vaulting thirteen feet up in the air and landing on a pile of foam rubber.

LESSON 64.0 oi

oil
coil
doily
appoint
noise
joiner
soil
spoil
point
broil
joint
moist
boil
loin
poison
voice
noisy
oiler
toil
join
Detroit
hoist
rejoin
broiler
foil
coin
choice
embroider
disappoint

64.1 eye

64.2 THE DRIVER IN LOVE

Once upon a time a young man named Alfred Coil, who lived in Detroit, fell in love with a Jaguar. Not a jaguar in the zoo, but a Jaguar in a showroom. It was a beautiful 1967 Jaguar with a 3.8 liter engine, four speeds on the floor, and all the possible instruments on the dashboard. Where some cars have a bulb that goes on to tell you that the oil pressure is low, this Jaguar had a gauge that showed exactly how many pounds of oil pressure there were inside the engine.

Alfred gazed into the shiny eyes of the Jaguar and told her how much he loved her. The Jaguar just goggled and blinked her shiny yellow eyes and said to Alfred, "If you want me you will have to buy me, and I will cost you a lot of money."

Alfred asked, "Once I have paid for you, will you last a long time and be faithful to me and in that way save me a lot of money?"

The Jaguar replied, in a soft voice, "I'm afraid I'll disappoint you there, too. Am I your choice? Well, if I am the lady of your choice, I'll expect a lot from you. My engine takes twenty-one quarts of oil, and I will want my oil changed frequently. Old oil is poison to me. The points in my distributor have to be adjusted very accurately with special British Jaguar tools. So you will have to make an appointment at a special Jaguar dealer's, and that may cost you quite a few large coins."

Alfred's eyes were becoming moist. "What else?" he asked. "You are beginning to spoil my dreams about you."

"Well," said the beautiful Jaguar, blinking her yellow eyes and speaking so softly that Alfred was hardly able to hear her voice above the noise in the street, "Well, if you join the Jaguar club you will join a group of my former lovers. Quite a few men have been in love with me. They were not faithful to me because they said I disappointed them. They said I cost a lot of coins. Some of them even said I was a gold digger. They let me become soiled with mud and traffic film. They didn't check my coils, and they let my points get pitted and dirty and scarred. Then they said that I used too much oil and I did not run smoothly. So they all sold me."

Alfred's eyes were by now very moist, and he turned sadly away. He decided not to join the Jaguar club. He was, rather, going to rejoin the Detroit Compact Car Club and give his love to a small economical American compact. He believed it was going to be more grateful than the lofty and disdainful Jaguar, even if she did have shiny yellow eyes.

LESSON 65.0 oy (oi)

boy
soy bean
annoyance
loyal
Floyd
joy
oyster
alloy
boyhood
ploy
Doyle
Roy
destroy
employ
Foyer
enjoy
Joyce
employer
toy
annoy
royal
employee

65.1

1. The soy bean came from China. It is used as feed for cattle and for its oil, which is used widely for cooking and to make margarine. Soy sauce is used to season Chinese and Japanese foods. It is now popular in America.
2. "Sloyd" is a word that comes from Sweden, where it means "skill." It is a system of teaching carpentry, or woodworking, that has been widely used in America. The method of the system is to have the student begin with the most simple tools and work up into the use of the most complicated and difficult tools, step by step. Many schools in the northern part of the Middle West, in the United States, call the carpentry courses in their schools by the name, Sloyd.
3. Lloyd is a man's name. It begins with the letter l twice, but you can say only one of them, so you say Lloyd as if it were Loyd. It is a Welsh name. Welshmen, as you have surely been told before, come from Wales, which is a part of England, over on the south-western side, across from Ireland. There are many coal mines in Wales, and the miners there have worked under very difficult conditions for low pay. The Welsh have dark hair and have always been said to have powers of clairvoyance. That is, the power to see into the future, to interpret dreams, or even to read another person's mind. For many, many years in the old days, the Welsh were always more or less at war with England. Now they are a part of the nation, and there is peace.

A Famous City of Turkey

The large and famous city of Turkey today is named Istanbul. This is a Turkish name. Until 1923 it was the capital of Turkey and its name was Constantinople (Con-stan-ti-nó-ple). Long, long before that, the name of this city was Byzantium (By-zan-ti-um). It was named Constantinople after the Roman Emperor Constantine. It was named Byzantium, earlier, when it was the capital of the Byzantine Empire, in late Roman times, some 1500 years ago. But we are not done with its names yet! In pre-Christian times, a thousand years and more before the birth of Chirst, the City was called Troy. The men of Troy were called Trojans. They were Greeks. The Greeks from Athens had a war with the Trojans that lasted ten years and ended when Troy was burned to the ground. The Greeks called this city Ilium (Il-i-um). A famous German student of history, named Schliemann (pronounced Schlee man), dug down into the ground (this was in the nineteenth century, when the city was named Constantinople) and found that there were twelve cities buried under each other. Old Troy was the seventh city down from the surface of the ground. When they dig down, looking for remains of old towns or cities, it is called excavating (ex-ca-va-ting). Today we speak of excavating for the basement of a new skyscraper -- or to get at water, gas, or electric pipes and wires. When a baseball pitcher takes time out on the pitching mound, kicking and raking the dirt with his cleats, he may be trying to make the ground smooth and level, or he may just be trying to make the batter nervous and jumpy. The broadcasters and sportswriters often say he is "gardening" or "excavating" out there.

Alloys

When more than one metal are mixed together, or melted together, we get an alloy. Brass is an alloy of copper and zinc. Bronze is an alloy of copper and tin. In Roman times they were able to make bronze as hard as iron, by some tempering process that has been lost. Today, many industrial processes are kept secret, and they too may be lost because they are not written down. Many trade secrets have been lost in this way, in the course of man's history.

Very many alloys are used in the manufacture of automobiles. On the body, the bumpers and trim are often of stainless steel. This is an alloy that will not rust. It is very hard, and it is not easy to work or shape. As you probably have noticed, stainless steel blades are hard to sharpen. Zinc, tin, magnesium, and nickel are other metals that are mixed with iron to make metals with special qualities. Steel is an alloy of iron with carbon and other metals; it is much harder and stronger than iron. A car's springs are made of steel with an extra amount of carbon to make them strong and springy.

If the bodies of automobiles are made of stainless steel, they will not rust, but it costs too much and so the manufacturers do not use stainless steel for automobile bodies.

The study of metals, especially alloys, is called metallurgy. It is the study of their qualities and properties, and of how to make new metals. Research scientists, working for auto makers, are constantly seeking to make alloys with new and better qualities.

The Word, "Ploy"

A ploy is a new and partly a slang word for a sort of trick by which one man puts another down. It's a way of getting at a man, a way of putting a man in the wrong or at a disadvantage. It's a clever way of managing somebody. The first use of the word was in a book, a funny book, about how to put others down. Two young fellows were beating two older men very badly at tennis. One of the older men hit a ball so far out that it hit the fence. It was thirty feet out of the court. The young men got in position for the next point without saying anything. One of the older men interrupted just as one of the young men was about to serve. He said, "How was that last shot that I made?" The young man stopped, very much surprised, and said, "Why it was out, of course."

The older man said, "Well, please call the shots each time so we can be sure of the score." The two young players were so upset by this that they lost the game. So the older men had made a famous ploy. The story is in a book entitled GAMESMANSHIP, which is about "How to win games without actually cheating." Gamesmanship is a new word, which the writer invented. It is something like salesmanship or workmanship, or ownership.

The Law

There was time when bars had to employ a man just to destroy the bottles as they were used. There was a law that all bottles had to be broken so that they cannot be used again. The law was such an annoyance that it was not enforced. Today it is completely forgotten by most people. Men can be loyal to the state or the country without always obeying all of the laws. When a law is a mistake, as laws sometimes are, it will be neglected and then forgotten. Sometimes very old laws are dug out and used. There is a law in the constitution of the State of Texas saying that no one is allowed to fish for whales in the Rio Grande River. Now, there never were any whales in the Rio Grande River, which is almost dry a good part of the year. The law got there because the constitution of Texas was copied from the constitution of some eastern state that had a big river running into the sea. Maybe it was Delaware. The Delaware River runs into Chesapeake Bay, and whales can go a short way up the river, if they want to.

What Annoys a Noisy Oyster

A boy asked his father, "What noise annoys a noisy oyster?" His father did not have the information. So the boy explained, "Father, a noisy noise annoys a noisy oyster."

EXERCISES

1. A popular bean that came from China is the____bean. (see paragraph 1)
2. "Sloyd" in Sweden, means________. (See paragraph 2)
3. A large and famous city of Turkey is_________. (see story) "A Famous City of Turkey.")
4. What is the word for looking for the remains of old towns or cities? (see story, "A Famous City of Turkey.")
5. When metals are melted together, you get an________, (see second story.)

LESSON 66.0 silent g

- sign
- Ensign
- gnash
- resign
- designer
- cologne
- resigned
- gnome
- gnat
- signboard
- gnaw
- design
- gnu
- gnarl

66.1 The Silent g

The silent g spelling is not very common. It occurs most often in the word sign, which has several meanings. A sign is a label, like a street sign. It can be an advertisement on a big billboard. It can be a direction, like an arrow pointing down a road to tell you where to go to get to a lake or a hotel or a house. It can be a signal made with the eyes or a hand, as, "He raised his hand as a sign of victory," or "He made a sign with his hand to tell the men to sit down." Sign as a verb is what you do when you write your name with a pen or pencil. You sign a check, or a payroll, or a will, or an attendance sheet; or you sign the check for dinner if you have a charge account. We also speak of "signs of rain" if we see dark clouds in the sky.

The Meaning of "Resign"

The word resign, which means to give up a job or a position, also has a silent g; but in the word resignation the g is pronounced. A resignation is, for example, a letter to an employer saying that the person writing the letter is leaving his position. A member of the cabinet can write a letter of resignation to the President of the United States. The same thing happens with a word made from "sign." Those who sign a treaty or any legal document are called the signatories. There the g is pronounced, as it is in the singular form, signatory (sig na to ry). It seems to be that we pronounce the g in these longer words because we have to. The same is true of the word signature-- your name signed. This happens in other words. An old word that means "to hear" is "list." We don't use this word today, but we do say "listen," which we pronounce lissen. This probably started because of carelessness.

The Decline of Muscle Cars

The word in our title, "Muscle," is pronounced "mussel." It means, of course, the part of your arm or leg that gives it strength. Muscle cars are the class of sports cars that have engines up to 425 cubic inches of displacement, or more even, and have so much power that the driver can spin his wheels even on a concrete surface and when the car is at a standstill. These cars come in various different styles. The most "muscular" ones have racing stripes, special hub caps, roll bars, and all sorts of special improvements to their carburetors and camshafts to make them faster and more powerful. They often have manual rather than automatic transmissions, with what they call "four on the floor"-- that is, four speeds forward controlled by a gear-shift lever on the floor of the car rather than on the steering wheel.

These cars were produced because many drivers wanted something smaller and sportier than a regular model sedan, and also because many American drivers like the small, fast cars that were made in Europe, such as the Mercedes Benz 300 SL, the Alpha Romeo Spider, and the Fiat 148, and also the English Triumphs and Jaguars. The muscle cars were produced by Detroit to compete with these fast, sporty imported models. They were increasingly successful for a number of years.

But in 1970 the sales of muscle cars began to decline rapidly. The major cause for this decline was the U.S. government's attempt to control inflation, which raised interest rates, increased unemployment, and slowed down the American economy. The economy had been "overheated," as they say in Washington, and it was important to try to get it under control; but it made a good many drivers feel the pinch of scarce money. The New York Stock Exchange saw prices fall down very far in 1969 and early 1970, and a good many drivers were feeling poor even if they were not actually poor. It became "smart to be thrifty," and the first place to save was on the automobile.

There were other causes for the decline in sales of muscle cars. They were cars that had been popular with the younger citizens, who like to go faster perhaps than is entirely safe. It seems that the insurance companies did not like to insure muscle cars, and especially they did not like to insure muscle cars driven by young men under twenty-five years old. The claims against them ran very high. More than one insurance company entirely stopped insuring "performance" cars driven by persons under twenty-five. Those that continued to write insurance on such cars raised their rates until the price of insurance for them was discouraging, if not prohibitive. The trend is increasing, and it is going to be harder and harder for the owner of a muscle car to get insured anywhere at all, unless it is at a very high price.

Another cause for the decline in muscle car sales is related to the insurance problem. The United States government has been pressed from several sides on the question of safety. It has been pointed out repeatedly that more persons die in automobile accidents than die in our wars. We lost about 50,000 lives a year. Many have demanded that the government take strong measures to increase automobile safety. Not much had been done by the middle of 1970, but it had already begun to look as if the government must act soon.

Another enemy of the muscle car is pollution. The whole nation is alarmed at the extent of the pollution of our water, land, and air. Air pollution is largely caused by the automobile. There are other causes, but automobile exhaust fumes lead all other causes. One step against pollution will be the elimination of ethyl gasoline, since ethyl is made with tetraethyl lead, and lead fumes make dangerous pollution. Without ethyl gasoline, there will have to be motors that run on a lower quality of gas, with a lower octane rating. This means that "performance" cars will have to have motors with lower compression ratios, and they will therefore be cars with poorer performance. The government may also pass laws limiting the power of automobiles, so that less gas will be used and less exhaust fumes will be released into the air.

These causes, then, have affected the sales of muscle cars: increased insurance rates, the public's desire to spend less money on cars, and the steps that will be taken against pollution -- plus the lesser cause of a government campaign against accidents caused by too much power and speed.

In place of the muscle cars, we are seeing a new fashion -- the mini car. Mini cars are cheap, economical, and especially easy to park in cities. We now have the Rambler Gremlin and the Ford Capri, and others will follow soon. The Ford Maverick has been on the market for some time and its sales have been surprisingly high. General Motors will have a mini out soon. Such cars will take less space, use less gasoline, and perhaps not have such serious accidents because they will not in general go as fast as larger cars go.

EXERCISES

1. Name two reasons for the decline in sales of muscle cars.

____

____

2. What kind of cars are replacing muscle cars?

____

3. Give the names of three "mini" cars in the U.S.?

____

____

____

LESSON 67.0 silent h

John
herb
Thomas
ghetto
hour
honest
exhaust
ghoul
honor
Ghana
dishonor
ghost
Johnny
honorable
heir
Rhine
ghastly

67.1 EXERCISES

Write a sentence using each of the above words.

1. (John)
2. (herb)
3. (Thomas)
4. (ghetto)
5. (hour)
6. (honest)
7. (exhaust)
8. (ghoul)
9. (honor)
10. (Ghana)
11. (dishonor)
12. (ghost)
13. (Johnny)
14. (honorable)
15. (heir)
16. (Rhine)
17. (ghastly)

LESSON 68.0 silent gh -- ght as t

sigh
dough
high
although
thigh
thorough
though
doughnut
through
bough

right
tight
slight
night
bright
flight
might
fright
plight
light
straight
tonight
fight
sight
delight

fought
caught
taught
sought
ought
bought
brought
thought
daughter
naughty
slaughter

68.1 Customer Service

He polished the right front fender till it was as bright as the sun. Then he adjusted the lights, both the low beams and the bright beams, and he saw to it that they shone straight and true. One was crooked. He had to make only a very slight adjustment on the other. The car was all right when the customer came. He said, "I am going to the fights tonight, and I'll have to have the bright lights to get home afterwards. There might be some fog." The service man said, "For fog you need fog lights. Do you want me to put on a pair of fog lights?" "No," said the customer, "I'm feeling too tight today to spend money on fog lights. I'll make it with the bright lights all right."

Tuning a Star Flight Six

Jack the tune-up man got an order blank from the foreman. He had to tune a Star Flight Six. When he caught sight of the car, he slapped his thigh and said, "Isn't she a beauty!" But he was a little bit frightened at first, because he had never worked on a Star Flight Six before.

But as he glanced through the work-order form he decided that he ought to be able to do the job easily. He went straight to the car and raised the hood. Then he sought for the distributor, which was slightly hidden under the large air filter. He brought a light and placed it where it threw plenty of light on the distributor.

Then he thought for a moment and decided that it was not right to begin with the distributor. He thought that he ought to begin with the spark plugs. So he moved his light over the engine and took out the spark plugs. He cleaned them, tested them for pressure leaks, and adjusted the points to .026" gaps. He cleaned the porcelain jackets until they were dry and bright, with no grease left on them. Then he tightened the plugs down -- not hard but just slightly past the point where it became hard to turn his socket tool.

Now it was time to go into the distributor and examine its points. When he brought the arm into the light, he saw that its point was pitted just a little bit and needed to be polished down until it was smooth. He gave it a careful and thorough polishing and made it smooth and bright. Then he tested the gap and the spring and corrected the timing.

All his fright had disappeared some time ago. He thought only about how he might do his job best. When he was finished, the foreman looked the Star Flight Six over carefully and said, "Jack, you have done a thorough and excellent job even though you have not worked on this car before. It's done right, and since it's four-thirty you might as well go home now. Have a good dinner tonight and we'll see you tomorrow."

"Thanks," said Jack, and off he went in high spirits. "Tonight I think I'll light out for town and live it up a bit," he thought to himself.

1. There are not very many words in English that have the silent gh as in right and might, but the ones we do have are certainly among the most common words, and you will see them in print whenever

you read anything. Sometimes the word night is spelled nite, by those who think that silent gh spelling is silly. Others spell throughway as thruway, for the same reason. And some spell though and through as tho and thru. The new spellings look strange to most of us, however, and they do not seem to be taking over very fast. We get so used to seeing that gh in the middle of might that we miss it when it is not there.

2. The teacher who taught the author's daughter was from Rhode Island. Rhode Island is a very small state, although it has a good many persons in its population. The h in Rhode and the s in Island are not pronounced.

3. In Africa there is an animal called a Rhinoceros (with a silent h) that charges like an express train at his enemy. The rhinoceros does not see very well, and he charges when he sees something moving. He may charge at some thing that is not there. He is so big and so strong and so dangerous that he is usually left alone. He is called a "rhino" for short.

4. A magician uses slight-of-hand to confuse his audience. He makes them look at the place where the real trick is not happening. He plays tricks with mirrors and lights, as well as slight-of-hand.

5. When a car has been cleaned inside and out, and very carefully, we say that it has had a through cleaning. This would be true although some spots might have been missed.

6. The supervisor bought some new wax and brought it to the station, where it was given a through testing. He said, "It works very well. It ought to make our customers happy. I thought it would be good when I first saw it at the distributor's. He was so pleased that he bought all the workers coffee and doughnuts. They did not have to be taught how to use the new wax. The directions were printed on the can, although a man could

probably use it even without reading the directions because all you do with most wax is rub it on throughly, let it dry, and then polish it off with a soft cloth.

EXERCISES

Write sentences using the word in parentheses.

1. (sigh)____
2. (night)____
3. (right)____
4. (might)____
5. (thigh)____
6. (thorough)______________________________________
7. (though)_______________________________________
8. (ought)____
9. (plight)_______________________________________
10. (slight)_______________________________________

LESSON 69.0 Silent l

calf
palm
caulk
would
yolk
walk
salmon
could
folks
talk
balm
should
calm
chalk
talking
balk
half
stalk
sidewalk
solder

69.1 ABOUT THE HISTORY OF THE AUTOMOBILE

1. Many persons today think that the automobile is an American invention and development. That is only partly true. Actually, the idea of a "horseless carriage," as it was first called, was born in Europe. As far back as 1863, a French inventor developed a one-cylinder gasoline powered engine that drove a clumsy automobile, but he was able to make it go only six miles.

2. In Germany, Carl Benz patented his first car in 1886. This car used benzine as fuel to power a water-jacketed, three-quarter horsepower engine that moved the vehicle at the then amazing speed of 7.2 miles per hour. It is interesting to note today that this speed raised the anger of the authorities. The police were called into the situation. Ordinances were passed limiting the speed of "horseless carriages" to that of a walking horse in the city or a slow trot in the country. Doctors discussed the top possible speed that the human body could endure. It was "proved" that any speed above twenty miles an hour would prove fatal to man!

3. Even before these first gasoline-powered cars, many men had tried to make self-propelled vehicles, (that is cars that run themselves) by hitching steam power to the wheel of carts and wagons. A Frenchman in 1769 and an Englishman in 1802 publicly demonstrated their extraordinary steam carriages. For frightening men and animals, the Frenchman was put in jail.

4. Nevertheless, in spite of public dislike and official regulations and restrictions, men continued to invent crude steam-powered automobiles. The word automobile means self-propelled, and that was the goal of their work, to make a vehicle that would run itself in place of having to be pushed or pulled by men or animals. By the time Benz and others were working on their gasoline cars, so much progress had been made that neat little French cars were getting to be popular on the roads.

5. Although the horseless carriage did have its beginning in Europe, it was American engineers, inventors, and businessmen who changed the motor car from an expensive toy of the rich into a working vehicle for the average man. They did this by making cars in large quantity-- by mass production methods--and by passing the savings that resulted on to the buyers.

6. Steam cars and electric cars led the way and then passed out of the picture. The real development of the automobile came with the perfection of the internal combustion, gasoline-powered engine. The first successful gas-powered engine in the United States was made by a pair of brothers--Charles E. and Frank Duryea (pronounced Dur ee ay)--back in 1893. Other American inventors followed their lead, for the automobile appealed to the progressive and adventurous spirit that has always been strong in America.

7. In less than 70 years, the infant industry grew into the most important business in the United States, and its importance in Europe grew almost as rapidly. With the new ease of movement, a whole new way of life became possible. Where we live, where we work, and how we spend our free time are all influenced by the automobile.

Our magnificent highway system, which lets us go when and where we choose, is a direct result of the automobile. A tremendous part of American work is devoted to making, servicing, repairing, fueling, selling, and providing for the automobile.

8. Now in the 1970's we may look for basic changes in the size, the power, and the fuel used by the automobile. Turbines with only one moving part are being planned. Pollution has to be eliminated. Other fuels may replace gasoline. New standards of safety are being demanded and fulfilled. The automobile is seeing new threshholds, new horzons, new dreams.

69.2 EXERCISES

1. What was the first automobile called? ______________________________.
(see paragraph one)
2. Who was the first German to patent a car? __________________________
(see paragraph two)
3. What kind of fuel was used in the first German cars? ________________
(see paragraph two)
4. Before the gasoline -powered cars what was used as power? ________
(see paragraph three)
5. What happened in America to make cars available for the average man?
______________________________ (see paragraph four)
6. The real development of the automobile came with the perfection of
what kind of engine? ______________________________ (see paragraph six)

LESSON 70.0 Long a (ā), spelled ey, ei, and eigh

70.1 ey as long a

they
trey
prey
grey
whey
greyhound
hey

70.2 ei as long a

reins
beige
vein
veil
reindeer
reign
feint
Beirut
geisha girl
lei (garland of flowers)

70.3 eigh as long a

weigh
eighteen
neighbor
freight
sleigh
weight
eight
neigh
eighty
overweight

UNUSUAL SPELLINGS

1. These are all common words with unusual spellings. In this list are many words that can be spelled another way. For example, the color grey is also spelled gray and has the same meaning. On the other hand, the word prey, which means something that is hunted by a hunting animal, has a very different meaning when spelled pray. Then it means to address God with praise or requests.

2. The word reins means the lines, made of animal hide or plastic, with which we control a horse. Rain is what comes down from the sky--falling water. Reign, pronounced the same way, is what a king or queen does; it means to be the ruler, the boss of the country, the one in charge. Some kings today may be said to reign when in fact they have no power. The king or Queen of England reigns but has almost no power to control or direct what happens in England.

3. The word vein means one of the tubes in the body that carries the blood. The word vain means very proud, "stuck-up," or impressed by your own importance, beauty, or brains.

4. A veil is a thin netting that hangs down over a person's face and partly conceals it; but a vale is an old word for a valley.

5. Weigh means to find the weight of something by putting it on a scale. It also can be used to say we weigh something in our minds, thinking it over carefully before we make a decision. The same sound, spelled way, means a path, or a method. "Which way did he go?" "Is that the right way to do it?" Although very different, the two meanings are really the same!

6. And there are more! Sleigh is a vehicle with runners in place of wheels, for going on ice or snow. But to slay means to kill. And eight is the number 8, whereas ate is the past of to eat. "He ate his lunch yesterday."

You may have some difficulty spelling these words

70.4 EXERCISES

1. Give another spelling for the word grey. ________
2. The word prey has a different meaning when it is spelled________.
   (see paragraph one)
3. Give two other spellings for the word rein. ________ ________
   (see paragraph two)
4. What is another spelling for the word vein. ________ ________
   (see paragraph three)
5. Another spelling of the word sleigh is________. (see paragraph six)

LESSON 71.0 ea as short e (ĕ)

head
pleasant
dead
health
meadow
wealthy
leather
treadmill
treasure

ready
measure
read
healthy
dealt
deaf
treadle
homestead
heavily

steady
pleasure
lead
heaven
sweat
dread
leapt
headline

spread
bread
tread
feather
heavy
sweater
jealous
bedstead

instead
ahead
thread
breath
weather
meant
dreamt
dreadful

71.1 THE AUTOMOBILE REPAIRMAN

1. Automobile body repairmen are skilled metal workers who repair motor vehicles that have been damaged in collisions and other accidents. They are real craftsmen, and they enjoy their work and are very well paid for it.

2. Repair of damaged vehicles may involve such work as straightening bent fenders, removing dents from fenders and body panels and doors, welding torn metal, and replacing badly damaged parts. Body repairmen are usually qualified to repair all types of vehicles, although most of them work mainly on automobiles and small trucks. A few of them specialize in repairing large trucks, buses, or truck trailers.

3. Before making repairs, body repairmen generally get instructions or directions from their supervisors, who decide which parts are to be restored (that is, repaired) and which are to be replaced; they also estimate the amount of time the repairs should take. When repairing damaged fenders and other body parts, the body repairman may first remove body hardware, window opening or operating equipment, and trim in order to get at the damaged part without denting, scratching, or painting the hardware.

4. In reshaping the metal, he may push large dents out with a hydraulic jack or a hand prying bar, or knock them out with a hand tool or air-driven hammer. He smoothes the remaining small dents and creases by holding a small sort of anvil against one side of the damaged area while he hammers the opposite side. This requires a steady hand, for the worker must not hit the metal too hard or he will make more dents than he knocks out. Very small pits and dimples are removed from the metal with the aid of pick hammers and punches, which make it possible for the repairman to get at a very small part of the metal surface without disturbing the rest of it.

5. The body repairman may remove badly damaged sections of body panels with an air-driven metal-cutting gun or an acetylene torch; he will replace them by welding in new sections of metal. If the damage includes jagged rips in the metal, he welds the torn edges. If the metal has been stretched, he shrinks it by repeatedly heating the area with an acetylene torch and striking it with a hammer until the original shape of the metal is restored. If the rip or cut in the metal has been welded, there will be a good deal of work in finishing the surface down to the right level and smoothness.

6. The automobile body repairman uses special compounds to fill small dents that he cannot work out of the metal. They are made of lead and other materials and are generally called solder (pronounced sod der), although they are not exactly the same thing as the solder that is used to join lead pipes or tin roofing together. Before putting the solder on, the repairman cleans the dent and coats it with liquid tin so that the solder will stick to the surface. He melts the solder with a torch (if it is regular hard solder) and uses a wooden paddle or other tool to mold it to the

correct shape. When the solder has hardened, the body repairman files or grinds it down to the level of the other metal. If he is using a compound, he can spread it on the dent without having to melt it with heat first. Sometimes he may use a plastic compound to fill the dents. In any case, he has to smooth and file it down to the level of the rest of the metal.

7. When the metal is back to its old shape, it is ready for refinishing. First the repaired surfaces are sanded smooth, and then they are ready to be painted. In most shops, automobile painters do the painting. Some of the smaller shops employ workers who are both body repairmen and painters. This puts them a little ahead of the competition, for they lose less time from waiting periods between repairs.

8. The automobile body repairman uses special tools to line up damaged auto frames and body sections. He chains or clamps the power tool to the damaged part and applies hydraulic force to straighten it. He also may use special devices to line up damaged vehicles that have "unit-bodies" instead of frames. In some shops, the straightening of frames and unit-bodies is done by a body repairman who specializes in this type of work.

9. The body repairman's work is seldom exactly the same twice because the repair of each damaged vehicle presents a different problem. In addition to having a broad understanding of automobile construction and repair methods, he must also be able to think up the best repair methods for each job he takes on. Most body repairmen find their jobs challenging; they take pride in being able to restore badly damaged automobiles so that they look brand new.

10. Body repairmen usually work by themselves, with only a few general directions from the foreman or supervisor. In some large shops

they may be assisted by helpers.

Employment Opportunities

11. Most of the nearly (that is, approximately) 100,000 automobile body repairmen employed in 1968 worked in repair shops that specialize in body repair work and painting, and in the service departments of auto and truck dealers. Body repairmen are also employed by businesses that maintain their own fleets of motor vehicles, such as trucking companies and buslines, and Federal, State, and local governments. The big car makers also employ a number of these workers.

12. There are employment opportunities for body repairmen in every part of the country. About half of them work in the eight states with the largest number of automobiles: California, New York, Pennsylvania, Ohio, Texas, Illinois, Michigan, and New Jersey. Body work is in demand everywhere, and the demand for it is growing constantly. We hope for a time when the public will drive much more carefully and put the repairman out of work, but that day does not seem to be just around the corner. It will be a pleasure for us all if it comes, for we dread the heavy expenses of auto damage. We wonder whether the public is deaf to warnings about speed and drunken driving, or just headstrong and heedless. Newspaper headlines are full of stories of dreadful accidents, in good weather and bad, at night or in the daytime; but the public goes ahead driving too fast, even though death rides under a heavy foot on the throttle. If clean air is a matter of life and breath, then the heavy tread on the gas pedal is a matter of life and death.

Training and Promotion or Advancement

13. Most body repairmen get their skills through on-the-job experience and practice. You men usually start as helpers and pick up the skills of the trade from experienced workers. Helpers begin by helping body repairmen in such tasks as removing damaged parts, fitting in repaired parts, and sanding repaired surfaces to get them ready for painting. A step at a time they find out how to remove small dents and make other small repairs; and then they go on to more difficult tasks as they gain experience and skill. Three to four years of on-the-job training is generally needed before a helper can become a fully skilled body repairman.

14. Although most workers who become body repairmen pick up the skills through on-the-job experience, most experts on training advise a regular three or four-year apprenticeship program as the best way for young men to master this trade. By "apprenticeship" we mean that the young worker is put into a regular training program, in which he is attached to a master repairman in a good shop and is given regular help and instruction as he works, along with regular raises in pay as he goes through the program. Such apprenticeship programs have regular periods of classroom teaching, along with the on-the-job training.

15. The United States Government is actively interested in such training programs. Special programs for unemployed and underemployed workers, to prepare them for entry (that is, beginning) automobile body repairmen jobs were in operation in early 1965 in many cities, under parts of the Manpower Development and Training Act passed by the U.S Congress. These programs, which in 1966 lasted up to a year, worked hard on the basic first steps of automobile body repair. Men who completed these

programs needed additional (that is, extra) on-the-job or apprenticeship training before they could qualify as fully skilled body repairmen.

16. Young men who want to become body repairmen should be in good shape and have quick hands and sharp vision. A few public schools offer courses in body repair, and there are some private training schools that offer such courses also. For these, of course, you would have to pay. You do not have to finish high school in order to become a body repairman; but some employers will ask if you have because they like to hire a fellow who has "finished a job." Other employers don't care about this at all.

17. Body repairmen usually are required to have their own handtools, but power tools are usually furnished by the employer. Many of these workers have a few hundred dollars worth of tools. Men in training for the work are expected to get a number of tools from time to time as they gain in skills and experience.

18. An experienced body repairman with the interest and the ability to be a foreman or supervisor may advance to be a shop foreman. Many body repairmen open their own shops and work as independent businessmen.

The Employment Outlook

19. Employment for automobile body repairmen is expected to increase at a moderate rate through the 1970's. In addition to the few thousand job openings expected every year as a result of basic growth in the nation's size and business, there will be an estimated 1,500 jobs each year to replace experienced body repairmen who retire or die. Job openings always appear as some body repairmen transfer to other lines of work. America is noted for the movement of its population from place to place and from job to job. When anyone moves to another job, he leaves a job open for

someone who has been preparing himself for that job. Every town and city in the country is looking, every day, for men to take job openings. There is no end to them.

20. The total number of body repairmen is expected to increase, first of all, as a result of the increasing number of motor vehicles damaged in traffic accidents. This number is expected to increase as the number of motor vehicles in use increases, even though new and improved highways, driver training courses, added safety features and devices on new cars, and stricter law enforcement may slow down the rate of increase. That is, the rate of increase may go down, but the total number of accidents will continue to grow.

21. On the other hand, there will be developments and inventions that will make it possible for a single body repairman to do more work in a day. This fact will to some extent balance the effect of the increasing number of motor vehicles on the road and the larger number of accidents that they will produce. For example, the growing custom of replacing rather than repairing demaged parts, the use of plastics for filling dents, and improved tools will make it possible for the workers who are already employed to finish their jobs in less time and therefore, of course, do more jobs in a day.

22. Automobile manufacturers are also making their cars so that they are more easily serviced and repaired. Some cars, for example, have panels and fenders that can be removed and replaced in a matter of minutes. The trend toward smaller cars may also decrease the amount of work needed to repair them.

Earnings and Working Conditions

23. Skilled automobile body repairmen employed by automobile dealers had wages on the average of $4.04 per hour for straight time in 1966. They have gone up since. These skilled workers generally made between two and three times as much as inexperienced helpers and trainees.

24. Many experienced body repairmen employed by automobile dealers and independent repair shops are paid a percentage--usually about 50 per cent--of the labor cost charged to the customer. Under this system, a worker's income depends largely on the amount of work he is given and how fast he finishes it. Some repairmen employed by trucking companies, buslines, and other businesses that repair their own vehicles usually get an hourly wage. Most body repairmen work 40 to 48 hours a week.

25. Many employers of body repairmen provide holiday and vacation pay, and additional benefits such as life, health, and accident insurance. Some also give something toward retirement plans. Body repairmen in some shops are regularly given clean uniforms at no cost to them.

26. Automobile body shops are noisy because of the banging of hammers against metal and the whir of power tools. Most shops are well ventilated, but often they are dusty and the smell of paint may be strong. Body repairmen often work in bent or cramped positions, and much of their work is hard and dirty. It takes muscle, and the man has to keep moving. There are dangers of cuts from sharp metal edges, burns from torches and heated metal, and injuries from power tools.

More Information

27. For more information on work opportunities, you should go to

local employers in body repair shops and automobile dealers; the State employment service near you; or offices of local unions that include body repairmen. The State employment service may also be a source of information about the Manpower Development and Training Act of 1962, about apprenticeships, and about other programs that provide training opportunities.

28. General information about the work of automobile body repairmen may be obtained from:

Automotive Service Industry Association
168 North Michigan Avenue,
Chicago, Illinois 60601

Independent Garage Owners of America, Inc.
624 South Michigan Avenue
Chicago, Illinois 60605

LESSON 72.0 ea as long a (ā), and ear as (âr)

72.1 ea as long a (ā)

great
greater
break
breaking
steak
beefsteak

72.2 ear as (âr)

tear
wear
bear
swear
pear

72.3

1. The brake pedal may break if we stamp down on it too hard.

2. The wear on a brake band is much greater when the automobile has power brakes. The greatest wear comes when the driver is a cowboy who puts more strain on his car than it can properly bear.

3. There is a great National Park out West in Wyoming called Yellowstone National Park. It has many wild bears roaming around. They are big and strong and therefore somewhat dangerous, because when they see a car they are pretty sure that there is something good to eat in it, and they will not take no for an answer if they can help it. So they break car windows, and sometimes they go after a tourist and scare him half to death. They like everything to eat. One bear ate a basket of pears that someone had left on the front seat of his car while he went off to look at the sights. Tourists are advised to go through Yellowstone with their doors locked and their windows up tight. The bears are up and roaming around long before daybreak in Yellowstone; so you can't fool them by rising before the sun. Bears are big, brown, and burly. They are also curious, inquisitive, and brave.

4. Henry was in a great hurry for dinner because he was hungry. He went tearing down the street in his new Cougar, thinking of the beefsteak that he expected to eat for dinner. Tearing down the street after him came the State trooper in his patrol car. Henry was arrested and taken to the town jail, where he was locked up for the night. Henry sat there and dreamed of his beefsteak. It was like to break his spirit for good. When they let him out, a little after daybreak, he went home without any tearing at all, and his wife gave him the beefsteak with catsup for breakfast. Breakfast is the meal where we break our fast. A fast is a time when we do not eat. Night is a sort of fast. Therefore we say breakfast, though we say the break differently.

LESSON 73.0 ear as ẽr and är

73.1 ear as ẽr

learn
heard
Earl
earn
research
earth
early
learned
dearth
earnings
pearl
search
earl

73.2 ear as är

heart
hearken
hearty
heartless
hearth
hearthstone
heartbeat

73.3 People

73.4 The Front-End and Auto Brake Repairman

1. The front-end repairman generally is also a brake specialist. The "front-end," as it is called, really means the wheel, suspension, and steering systems of the front end of the automobile. By the term "system" we mean any group of units that work together, all depending on each other, to do some sort of work. You have heard of the Bell telephone system. By it, we can speak to another person ten thousand miles around the earth. Everything that makes it work is part of the "system," even the research workers in a science laboratory. The steering system of a car is everything from the steering wheel to the wheels on the road, which make it possible for a person to turn his car in any direction he wants.

2. The front-end repairman adjusts and repairs front-end suspensions. He understands the steering system, or assembly, as it is also called. He can adjust and test the power-steering units. He works with very special equipment to line up the front wheels; this task is called alignment (with a silent g). The wheels have to be parallel, that is, both pointing in exactly the same direction; and they have to tip in at the bottom very slightly. These

adjustments not only make the car track and steer perfectly, but they are also very important to reduce tire wear to the minimum.

3. Another task that affects both the driving qualities of the car and the mileage that the tires will give is wheel balancing. If the wheels are out of balance they will "shimmy," that is, shake at certain speeds; they may shake so hard that the whole car trembles and shakes. If they do this they may damage the front-wheel bearings or journals. (A journal is the part that a bearing turns around.) A bad shimmy will make a tire wear out very rapidly.

4. The front-end repairman is also a brake expert, and he deals of course with both front and rear brakes. He has to be able to adjust them, to replace brake linings, to smooth out the surface of a brake drum when it has become pitted, gooved, or scarred from badly-worn linings. The reason the drum becomes damaged is usually that the brake lining is allowed to wear down so far that the rivets that hold it to the brake shoe come through and rub against the brake drum. When there is plenty of thickness to the lining, the rivets are recessed, that is, set down below the surface, and do not touch the drum. Brake repair also means working with the hydraulic cylinders and systems that hold the brake fluid. Disc brakes, a fairly new system, demand a whole new set of skills, techniques, and tools. Nearly all cars have front-wheel disc brakes today, and most of them now have disc brakes on all four wheels.

5. A front-end man taking a car into the service station or garage for a complete checkup, earns his pay very well. He drives the automobile on a wheel alignment rack and tests it for faulty wheel alignment, for a possible bent axle, for worn ball joints, and for bent steering rods and tie rods. He uses an alignment testing device for this work. If he finds

trouble, he straightens the axle and steering and tie rods; he puts shims (thin metal discs that adjust the space between other parts) in place. He must work without heating any metal in the front end to make it bend more easily, for metal that has been heated may become brittle, and if the metal in any part of the front end breaks, there may be a terrible accident. This is one of the first facts that a front-end man must learn.

6. Next he will take the wheels off and put them on a balancing device. This is a power driven tool that tells him exactly how much weight must be added to certain points on the rim in order to make it run in perfect balance, so that it will not shake or shimmy at all. He hammers these weights on by hand. They are called "counterweights" because they are put "counter," that is, opposite to the spots where the wheel is too heavy.

7. Sometimes the front-end man will have to straighten the frame of a car. He does this with a hydraulic jack that gives him the power he needs, a frame aligner that measures exactly whether the frame is square, and an acetylene torch that heats the frame metal to the point where it will bend easily.

8. If he has to repair or overhaul the brake system on a car or truck or bus, he begins by raising the axle with a hydraulic jack or a hoist. Then he removes the wheels; often he has to use a wheel puller and a sledge hammer to break it loose. He inspects the brake linings, replaces worn or defective ones, and adjusts them exactly. He also inspects the metal breakshoe, and the drum. If the drums are in need of resurfacing, he will set up and operate a brake drum lathe on which he performs this task. He will measure the drum with a special tool to see if he has restored its correct shape, and he will rivet the brake linings that he is replacing to the brake shoes.

9. He will test the hydraulic system for leaks with a tool that measures the pressure when the engine is running. He may replace a leaky cylinder; and he will have to inspect and adjust or replace and air-compressors that are parts of air-brake systems on large trucks and busses.

10. After he has put the wheel back on the axle, he has to adjust the brakeshoe clearance so that the lining touches the drum and stops the car at just the right moment when the brake pedal is pushed down. He does this usually by turning a nut on the wheel for this purpose. He also fills the master cylinder with brake fluid; pumps the brake pedal to be sure that the lines are full, and if necessary opens valves in the hydraulic system to let out any air that has got into the lines. If there is air in the lines, the system will not operate correctly.

EXERCISES

Write sentences about the work of the front-end and auto brake repairman using, the following words:

1. (learn)______________________________
2. (heard)______________________________
3. (earn)______________________________
4. (earnings)____________________________
5. (heart)______________________________
6. (hearty)______________________________

LESSON 74.0 ie as long e (ē)

chief
piece
shield
shriek
Jimmie
belief
field
fiend
fierce
Lizzie
relief
yield
niece
pierce
collie
brief
priest
believe
achieve
Charlie
thief
wield
siege
grief
Laurie

74.1 Words, where the -y ending is changed to ie for a plural

stories
copies
bunnies
puppies
daisies
parties
cities
pennies
candies
berries
sixties
ladies
huskies
seventies
fifties
buggies

74.2 More About the Front-End Repairman

1. Brake and front-end repairmen usually work by themselves, with only general direction and supervision from the shop foreman or the man in charge of the service station.

2. For the well-qualified brake and alignment man, the outlook for employment is bright. The chief reason for this is that purchase of automobiles increases steadily and continually. People now seldom try to save pennies by doing this sort of work themselves, especially because it is too difficult for the unskilled citizen with nothing but home tools to use; so they bring their cars to the professional to get the work done right. Brake and alignment work is to be found at dealerships, in service-station garages, in fleet maintenance shops, and in many shops that specialize in just this work. Brake and alignment men are employed all over the country; but about 50% of them work in the eight states with the largest number of automobiles: California, New York, Texas, Pennsylvania, Ohio, Michigan, Illinois, and New Jersey.

3. Salaries for such work range from $3.50 to $5.00 per hour for regular time. Some repairmen are paid a percentage of the labor cost to the customer of the job they do. Others are paid a fixed fee for each job they perform. Under both of these systems, the repairman's earnings depend upon the amount of work he is given and on how quickly he finishes it. Most repairmen work between 40 and 48 hours a week, but many work longer days during busy periods. Many employers of brake and front-end repairmen give extra holiday and vacation pay, and many give additional benefits such as life, health, and accident insurance.

4. Brake and front-end men generally work in well ventilated, lighted and heated shops. The work often requires handling dirty, greasy parts, and it means working in uncomfortable positions. Small cuts and scratches and bumps are common. Fingers are sometimes pierced by bits of metal.

5. Advancement to the position of foreman or customer service representative (that is, the man who sets up the job with the customer, giving estimated time, making appointments, and determining the price of the job) is possible in larger shops or garages. When a foreman or customer man takes care of setting up the job, the repairman can get a good many more jobs finished in a day -- and therefore he will earn a good deal more money. Thus the customer man shields the worker from time-wasting conversations with customers.

Qualifications

6. Most brake and front-end repairmen learn the trade through on-the-job experience, and they generally believe that that is a good way to do it. Men usually begin as helpers and master the needed skills and information in about two years. A growing number of men enter the field upon completion

of vocational courses in brakes and front-end repair. Men who complete these programs usually need further on-the-job training before they become master workmen. If you would like to have this work, you should be in good health, have quick strong hands and an interest in automobiles and engines. You will have to be able to stand on your feet for long periods of time, and you will also have to work, sometimes, in uncomfortable positions.

LESSON 75.0 ei as long e (ē)

receive
neither
ceiling
conceit
leisure
deceit
perceive
receipt
either
seize

75.1 mechanic

75.2 The Automobile Mechanic

1. Automobile mechanics keep the country's rising number of automobiles, trucks, and buses in good operating condition. They do preventive maintenance, diagnose breakdowns, and make repairs. Without them the life of a car could be very brief. They receive good pay, plenty of leisure, and pleasure in their work.

2. Preventive maintenance is the regular examination, inspection, adjustment, repair, or replacement of the operating parts of a motor vehicle. It is a very important responsibility of the automobile mechanic because it is absolutely essential to safe and trouble-free driving. When working on a car, the mechanic may follow a "checklist" to make sure he examines all important parts of the car. During a regular maintenance inspection, he may, for example, look for and replace worn parts, such as distributor points; clean, adjust, or replace spark plugs; adjust the carburetor, brakes, and clutch; and either balance the wheels or have them balanced by a front-end man.

3. When mechanical or electrical troubles develop in a car, the mechanic first asks the owner to tell him what is the matter. If the cause of the trouble is not clear, he may inspect the motor, see whether he can hear some noise that will locate the trouble for him, or take the car for a test drive. He will also use a number of testing devices, such as motor analyzers, spark plug testers, compression gauges, and electrical test meters. The ability to make an accurate diagnosis in the least possible time is one of the good mechanic's most valuable skills.

This skill demands a thorough understanding of the way a car works, as well as ability to analyze evidence and tell where it points. Many skilled mechanics *consider diagnosing "hard to find troubles" one of their most* challenging and satisfying duties.

4. When the mechanic perceives the cause of the trouble, he adjusts, repairs, or replaces defective parts. For example, he may replace a fuel pump, grind valves, adjust the ignition timing, clean the carburetor, or re-surface the brake drums. He makes the choice of either replacing a part of repairing it. Sometimes he does neither, but makes only a small adjustment. During his leisure time he may study training manuals or service manuals that are put out by the makers of cars and car parts. The mechanic receives such manuals frequently, both through the mail and from the hands of salesmen.

5. In addition to the testing equipment mentioned above, automobile mechanics use many other kinds of tools and equipment. These may range from simple handtools (screwdrivers, pliers, socket sets, etc.), to complicated and expensive tools that help the mechanic make repairs. Examples of such equipment are wheel alignment devices and headlight aimers. Mechanics also make use of repair manuals, as noted above, and parts catalogs.

6. Most automobile mechanics perform a variety of repairs. Other mechanics, such as automatic transmission specialists, tune-up men, automobile air-conditioning specialists, front-end mechanics, and brake mechanics specialize in one or two types of repairs. Specialists with all-round skills, however, may also do general automobile repair work. Other specialists, such as radiator and automobile glass mechanics, who do not

have all-round skills, usually work exclusively at their special jobs. We shall describe some of their jobs in the next part.

EXERCISES

1. List three major tasks the mechanic performs.

2. Name two items that a mechanic often replaces in a car.

3. List three testing devices often used by a mechanic.

4. During leisure time, what may a mechanic do?

LESSON 76.0 silent w

wrench
wren
wring
writing
wrinkle
wry
Wright
wrist
write
wringer
writer
wriggle
wrought
wring-bolt
wrap
written
wreath
wristband
wretched
wreck
wrest
wrapper
wrong
wrath
wrist watch
wretch
wrangle
wrist pin
answer
wrote
who
two
awry
whole
writhe

76.1 Silent w words

1. Above are some very common words with the silent w. A wrench is one of the most common tools in a garage. Everybody has two wrists. The w in two is silent, but we have seen that word earlier in this program. In a store the clerk wraps your purchase in paper, and the paper is then a wrapper. The paper outside cover on a book is called the dust wrapper. A wren is one of the smallest birds. Reading and writing go together, and the three basic subjects, reading, writing, and arithemetic, are called the "three r's" because they start with the same sound if you say arithmetic like a child -- "rithmetic." To wring is to twist; a wringer is a device that squeezes the water out of wet clothes. Now, it does not twist the clothes, but when you wring them out by hand, you do it by twisting them; so the mechanical wringer gets its name from the way you do it by hand.

2. The word wrong is a very old past tense of the word wring. So something that was wrong was "twisted." We still have the word, but we have lost its old exact meaning. Another old past tense is wrought. It is the lost past form of work. Wrought iron, is therefore, "worked" iron, that is, iron that has been worked into its shape with a hammer on an anvil. Wrought iron used of course to be hand-wrought or hand-worked by a blacksmith. Today it may be formed in a press or some other sort

of device. Very often, in this way, the name for a thing stays with it long after the thing has changed and the name is no longer exactly right.

3. A wreath is a circle of flowers, and when you are weaving the flowers into the circle, or wreath, you are wreathing them. To wrangle is to quarrel or fuss or argue. A cowboy is sometimes called a "wrangler" and he is said to wrangle cattle. Probably he got the name because there is a good deal of shouting and fussing involved in the herding of cattle.

4. Another word that every mechanic or garageman knows is "wreck." A wreck can be partial or total. The remains of a wreck are "wreckage," although that word is more often used for a wrecked ship than for a wrecked automobile. Another word for anger is wrath, which is what we feel when we wreck our automobile. At such a time, the best we can manage in the way of looking cheerful is a wry smile, that is, sort of a grim twisted smile that expresses our helpless feeling as we look at what used to be a nice clean automobile.

EXERCISES

(Fill in the blank with a silent w word)

1. A common tool in a garage. ______________
2. Part of the human body. ________________
3. A very small bird. __________________
4. Something a clerk puts around a purchase. __________________
5. Something that is not right. _____________
6. A circle of flowers. _________________

LESSON 77

LESSON 77.0 Silent k, as in knock

knee
knot
knife
knowledge
knight
kneel
know
knead
knocking
knit
knew
knack
knotted
knuckle
knowing
knock
knotting
knob
known
knelt
Knoxville

In the Middle Ages, a thousand years ago, a knight would kneel before his king to show his respect. If the king knew that the knight was brave, he would honor him with some special sign.

MORE ABOUT MECHANICS:

THE AUTOMOBILE TRANSMISSION SPECIALIST

Automatic transmission specialists repair and replace linkage, gear trains, couplings, hydraulic pumps, and other parts of automobile transmissions. Automatic transmissions are complex devices; their repair requires considerable experience and training, including a knowledge of hydraulics, that is, the forces exerted by fluids under pressure.

THE TUNE-UP MAN

Tune-up men adjust the ignition, timing, and valves, and adjust or replace spark plugs, distributor breaker points, and other parts to insure efficient engine performance. They are skilled in using special test equipment to locate failures or imperfect workings in fuel and ignition systems.

THE AIR-CONDITIONING MAN

Air-conditioning men install air-conditioners and repair and adjust compressors, condensers, and other parts of the system. They may have to work in consultation with the tune-up man, because the air-conditioning system uses a good deal of power, and the engine has to be properly tuned in order to supply this power without overheating or running unevenly.

THE BRAKE SPECIALIST

The brake specialist adjusts brakes, replaces brake linings, resurfaces brake drums, repairs hydraulic cylinders, and makes other repairs on brake systems. Those employed in repair shops that specialize in brake service may also replace shock absorbers, springs, and mufflers. In some shops, combination front-end and brake mechanics are employed. This work requires a good deal of bending and kneeling. The brake specialist may knock his knuckle on the wheel or fender if his wrench slips off the lug, but bruised knuckles are something any sort of auto mechanic may have to put up with in the course of his work.

THE RADIATOR SPECIALIST

Automobile radiator specialists clean radiators with cleaning solutions, locate and repair leaks, and install new radiator cores.

They may also repair heaters and solder leaks in gasoline tanks. They have to know about a large stock of hoses and belts, for there are a great many different size hoses and belts for all the automobiles on the road today. When a driver comes in with a boiling radiator and a broken or leaking hose, he wants a new hose right away, and nothing else will do. If his fan belt has broken, his engine will overheat, of course, and he cannot go very far on a warm day. He will also be very busy in the early days of winter putting anti-freeze in radiators. Some people keep their anti-freeze in all summer, but some believe that they must flush out their radiators and put water and anti-rust solution in them for the summer. Most anti-freeze solutions today have a rust preventer in them. The radiator shop usually has a large, flat metal tank with water in it; it is for finding leaks in radiator cores. Today some of the anti-freezes have an agent in them that solders leaks; they keep a radiator from leaking.

AUTOMOBILE GLASS MECHANICS

Automobile glass mechanics replace broken or pitted windshield and window glass. They repair manual and power-driver devices for raising and lowering automobile windows. They cut window replacement glass from flat sheets, using window patterns that are supplied by the car maker and glass cutting tools. Most, if not all, automobiles today have special laminated safety glass that has to be cut with special skill. Some cars have defrosting wires imbedded in the glass, so that ice or mist will not form on them. They require special attention. It is also becoming common to have the antenna of the car radio stretched inside the glass of the rear window or perhaps of the windshield. This method has been developed to prevent vandals from breaking car antennas off, as they do sometimes. Such glass additions require special knowledge on the part of the mechanic.

EMPLOYMENT

The great majority of the estimated 580,000 automobile mechanics employed in 1966 worked in independent repair shops, which do all kinds of repairs. A great many also worked in shops that specialize in some particular part of the automobile, such as brakes, tires, automatic transmissions, engines, radiators, and glass. Many worked in the service departments of new and used car dealers, and many worked in gasoline service stations. Others were employed by Federal, State, and local governments, taxicab and auto leasing companies, and other organizations that maintain and repair their own trucks and automobiles. The U. S. Post Office, for example, has a great many very large establishments all over the country for repairing and servicing Post-Office vehicles of all sorts. Many mechanics are employed by automobile manufacturers to make the final adjustments at the end of the assembly line as the new car rolls off. Department stores often have their own fleets of cars and their own service departments. Delivery companies, like United Parcel, have very large fleets of delivery vehicles which they service.

Most auto mechanics work in shops that employ from one to five mechanics, but some of the largest shops employ more than a hundred. In general, automobile dealers employ more mechanics than independent repair shops do.

TRAINING AND QUALIFICATIONS

Most automobile mechanics learn their trade through on-the-job experience. Young men usually start as helpers, lubrication men, or gasoline service station attendants, and gradually they acquire the needed knowledge and skills by working along with experienced mechanics. It generally takes at least three to four years to become an all-around mechanic, and an additional year to learn a specialty -- and perhaps two years to learn a difficult specialty like automatic transmission repair.

On the other hand, radiator mechanics, glass mechanics, and brake specialists may learn their jobs in about two years.

For beginning jobs, employers look for men who know how an automobile is built and how it runs. They look for men who like mechanical work and like to fix things. A driver's license is needed for many jobs. A job in a service station will help you get background in automobile repair. Training as a mechanic in the Army, Navy, or Air Force is helpful, too. If you fix automobiles as a hobby that is useful. Courses in automobile repair in high school or night school will make you more valuable to an employer. So will courses at vocational schools or private trade schools.

Training programs are in operation in a large number of cities under provisions of the Manpower Development and Training Act. These programs stress basic maintenance and repair work. Men who complete such programs are able to make simple repairs, but they still need additional on-the-job or apprenticeship training before they can quality as skilled mechanics.

Employers sometimes send experienced mechanics to factory training centers, where they learn about repairing new car models, or receive special training in such subjects as automatic transmission repair and air-conditioning service. Manufacturers also send representatives to local shops to conduct short training courses. A small number of high school graduates are chosen by automobile dealers to attend factory-sponsored mechanic training programs for beginners.

The employment outlook is good and the jobs are expected to increase as more cars some on the roads of America and mechanics transfer or retire. The favorable employment picture is to some degree balanced by the increasing efficiency of the shops. For example, increased specialization and growth in the use of test equipment, e. g., dynamometers and engine analyzers, reduces the time needed to diagnose troubles. There is also an increasing emphasis on replacement instead of repair. Some lines of cars today are featuring systems by which they can be diagnosed very rapidly and accurately. But in spite of these balancing factors, the outlook for employment is better with every year that passes.

The Knotted Rope Trick

When he found that he could not knock the rope off of the hook, he cut through the knot with his knife. Then he tied the rope around the door knob and knotted the other end to a tree. This kept the door firmly closed. The people on the inside did not know why they could not open the door. The only person inside who was not bothered was the cook, who was kneading bread in the kitchen. After they knocked on the door from the inside for a while, and shouted without getting any results, the father went out through the kitchen door and came around the house. There he found his son holding the knotted rope that kept the door closed. He put his son over his knee and gave him a severe spanking.

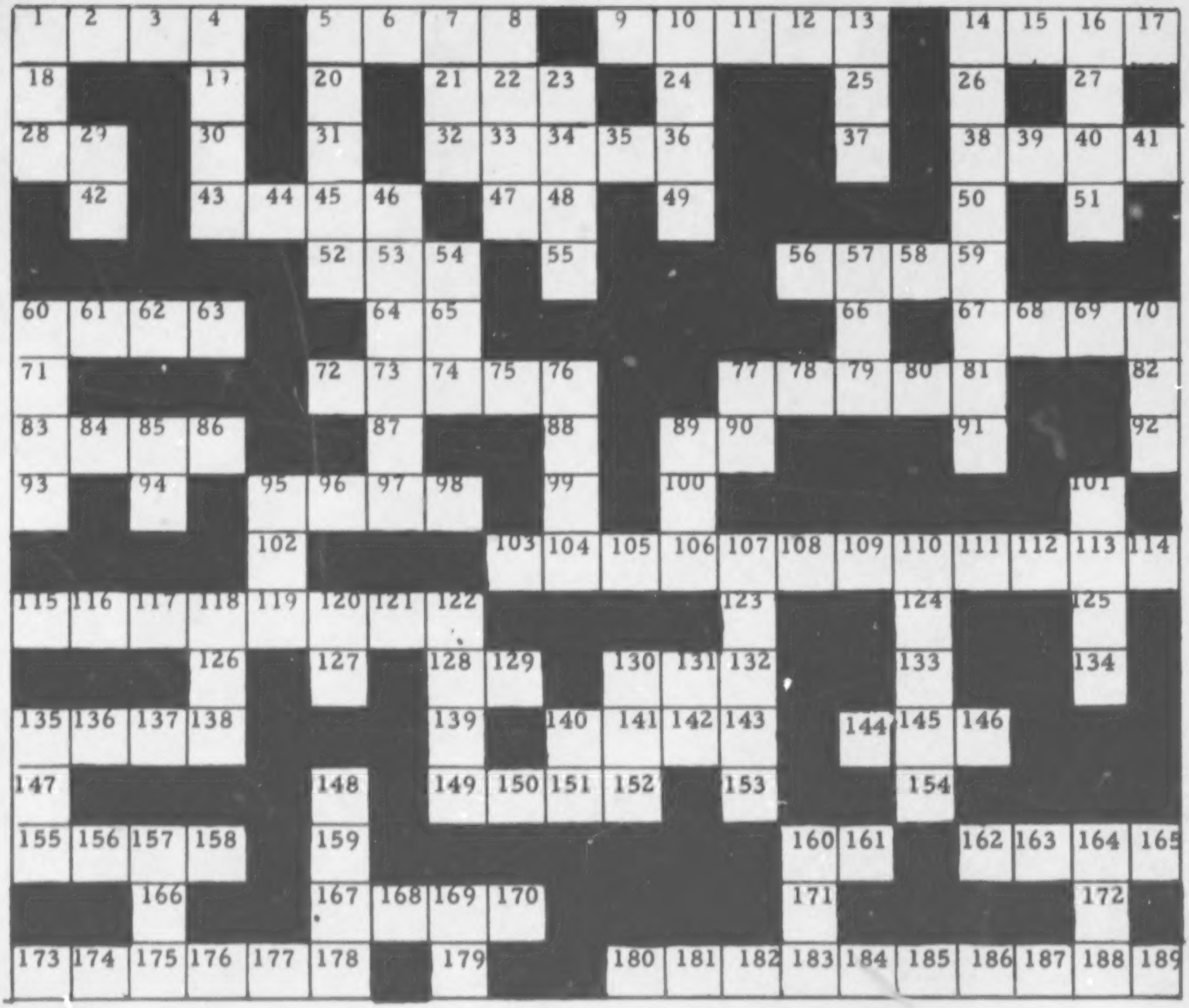
Write the best word in the blank. Words are shown at the right.

1. The ______________ on the door was turning.
2. He ______________ down to pick up the child.
3. Someone is ______________ on the door.
4. Take the ______________ and cut the string.
5. Wisemen are often very ______________.
6. Do you ______________ Charles Jones?
7. Will you ______________ a sweater for me?

knelt
kneel
knob
knit
knocking
knight
know
knife
knowledgeable

CROSS-WORD PUZZLE

(The following four pages have the directions to follow in completing the puzzle)



CROSS-WORD PUZZLE DIRECTIONS

(The puzzle is on page 165)

ACROSS

1. It has the ent sound as in rent and is the result of a crash.

5. It has the elt sound as in melt and is used as a safety device in a car to hold people to the seat.

9. It has the val sound as in valiant and is the part of a car motor which allows gas to escape and air to enter.

14. It has the ire sound as in fire and is what the car rides on.

21. It has the same â sound as bare and is what we breath.

28. It has the same o sound as tool and means to perform something.

32. It has the same ī sound as alive and means to control the movement of something.

38. It has the same i sound as thing and means a circular band of metal.

43. It has the long ā sound as in ape and means to build or construct.

47. Ending of a word (suffix) used to form the past tense of the word, also short for Edward.

52. It has the same e sound as in send and means the conclusion of something.

56. It has the same ō sound as go and is used in electricity to express the force of the flow of electrons.

60. It has the same e sound as ten and means to join two pieces of metal by heating until molten.

64. It has the long ō sound as in toe and means to move along.

67. It has the same a sound as in fat and means a container in a car for gasoline.

ACROSS - continued

72. It has a long ī sound as in bite and means snug or securely held.

77. It has the long e sound as in feel and is a round metal frame the tires are mounted on.

83. It has the same ê sound as in here and means the back part of something.

89. It has the same long ē sound as in even and refers to a man, boy or male animal.

103. It has the same ish sound as fish as is the part of a car in which gears are shifted.

115. It has the same il sound as silly and refers to the part of the engine in which the pistons ride.

128. It has the same o sound as love and means coming or resulting from.

130. It has the same ẽ sound as paper and means through or by means of.

135. It has the same long ō sound as in cool and is an instrument used for cutting, hitting, digging, rubbing, etc.

140. It has the same ū sound as in use and is slang for greasing machinery.

144. It has the same e sound as in net and means to place in position or cause to sit.

149. It has the same i sound as flirt and means earth or garden soil.

155. It has the same o sound as in world and means to labor or toil.

160. It has the same o sound as shoe and means toward or in the direction of.

162. It has the same o sound as in book and means to see something.

167. It has the same long ū sound as in use and means a sense of obligation, obedience or respect.

173. It has the same ou sound as in boy and means to make use of or provide work and pay.

180. It has two long ō sounds as in go and means a car.

CROSS-WORD PUZZLE DIRECTIONS

DOWN

1. It has the same a sound as in mad and means a father.

4. It has the same i sound as in dim and means to clip or cut or make neat.

5. It has the same long ā sound as in hate and is what you use to stop a car.

7. It has the same a sound as in glad and means a boy or youth.

8. It has the same long ī sound as in bite and is what the car rides on.

10. The word has a short ă sound. Chopping wood is your cue.

13. It has the same e sound as in ten and means the finish or conclusion of something.

14. It has the same o sound as in lot and is part of a carburetor that controls the amount of fuel in the engine.

16. It has the same i sound as in sing and is the round metal part on the piston which controls pressure.

23. It has the same long ī sound as bite and means to be carried by.

29. It has the same o sound as in lot and means in contact with something.

46. It has the same e sound as in end and is the motor of a car.

54. It has the same ô sound as horn and is a pet that likes to chase cats and barks.

57. It has the same o sound as once and is the name of the first number.

60. It has the a sound as in war and is the feeling of a little heat.

70. It has the same i sound as in sit and means a set of tools or parts to be assembled.

76. It has the same o sound as in poor and means a sightseeing trip.

77. It has the same long ē sound as in free and is used when you are speaking of yourself and other people.

DOWN - continued

85. It has the same a sound as in fat and means on, in, or nearby.

89. It has the same e sound as in when and is a female bird.

95. It has the same u as in sun and means lively or gay.

101. It has the same long ō sound as in go and means a region set aside for a particular use.

107. It has the same e sound as flew and is a fastener with grooves in it. it.

110. It has the same long ē sound as in feed and means to go quickly.

118. It has the same i sound as in fill and means to feel sick.

120. It has the same o sound as in tool and means to perform something.

122. It has the same long ō sound as in go and means a highway or course.

130. It has the same u sound as in push and means to place, set or lay something.

131. The initials of Ed Burns.

135. It has the same long ō sound as in go and means to pull something.

140. The initials of Little Rock.

148. It has the same o sound as in lot and means the main part of anything.

157. It has the same i sound as in slip and means to cut or tear something roughly.

160. It has the same o sound as in you and means also.

164. It has the same oi sound as in boil and is a greasy liquid also called petroleum.

169. It has the same o sound as in you and means toward.

LESSON 78.0 silent b

comb	numb	crumb	bomb	plumb
lamb	climb	dumb	thumb	tomb
bomber	plumber	debt	doubt	limb

The Plumb and the Plumber

Some exercises make us stiff; others make us limber. Our limbs are something like the limbs on a tree. The b is pronounced in slumber, but it is silent in plumber -- and who knows why? A plumb line is one that hangs very straight down because it has a weight on the end of it. The weight is often made of lead, and it is called a plumb line because plumb means lead in French and in Latin. Sailing vessels in the old days used to test the depth of the water by throwing or "casting the plumb." This meant throwing a lead weight on the end of a rope far out in front of the ship. It would go down to the bottom, and then they could tell by marks on the rope how deep the water was. The plumber gets his name from lead, too, because the pipes he used to install were mostly lead pipes. Out West they sometimes say that a man is "plumb crazy" or "plumb stupid." In that case it is a joking use of the word, and it means "very" or "perfectly," just as the plumb line is perfectly straight and vertical.

A Rule of Thumb

A handy, practical way of making a decision is called using a "rule of thumb." This phrase comes from the fact that a carpenter might measure something by the length of his thumb. Such a measurement would be useful but not absolutely accurate. The bomber in a bombing plane certainly does not use any "rule of thumb" today when he drops his bombs. He has instruments that make very accurate calculations. In the first

World War the airplanes were open-cockpit biplanes, and the pilots used to drop their bombs by hand, over the edge. That was "rule of thumb" bombing, all right. We doubt that it was very effective. Flying over the fields of France and Germany, the pilots may have killed a good many dumb creatures, like lambs and cows, instead of men.

The difference between a modern automobile diagnostician and an old time garage man is that the diagnostician does not use any rule of thumb measurements or decisions. He is working with complicated engines, and he has many very accurate electronic instruments with which to make his tests. He would doubt his thumb as a tester, and the more he doubted it the better he would be able to use his instruments.

More Silent b's

1. Everybody knows what crumbs are -- very small bits of bread or cake. When something decays and falls into little pieces, we say it crumbles (sounding the b), but many of us do not realize that we are saying it falls into crumbs. A comb is what we run through our hair to make it tidy, but a comber is a big white crest of breaking water or froth. The dictionaires do not tell why such a wave is called a comber. Perhaps it is because the white crest looks like a combed wool or fleece. The crest on the head of a rooster is called a comb because it has teeth, like a comb. The b in comber is not pronounced, as in plumber.

2. A man who climbs a hill is called a climber, but if he has a hard time of it, we may say that he "clambers" up the hill, and then we pronounce the b. Somebody clambering is probably using both hands and feet.

3. Anybody who buys a car on time is in debt for what he still owes. Some people who have a good many such debts say they are numb; that is, they can't feel any more. Of course, they can feel, but they hurt when they think about what they owe, and so they say they are numb, just as anyone may feel a bit numb after he has been hurt. A man's hands will get numb if he holds a jack-hammer driven by compressed air for too long.

4. A beachcomber is a person who lives by the sea and, usually, off the sea without working very hard. He gets his name because he combs over the beach looking for anything washed up by the sea that he may sell for enough money to keep himself alive and fed without further work. What the sea washes up is called "flotsam and jetsam." Flotsam is anything floating around. Jetsam is anything thrown from a ship. So the beachcomber may comb up almost anything. Today the word is used to describe just about anybody who lives by the sea and loafs. In a picture you will see him with long hair, a beard, sandals, and ragged white trousers. He may just as likely be barefoot.

The Automobile Painter

The automobile painter's job is to make old or damaged motor vehicles "look like new." These skilled workers repaint vehicles that have lost the shine of their original paint, and the repaired portions of vehicles damaged in traffic accidents.

In preparing an automobile for a painting the painter or his helper first uses coarse paper to take off the old paint. The painter then applies primer coats to the automobile surface with a spray gun and, after the primer dries, sands the surface by hand with a fine grade of sandpaper until it is very smooth and ready to be painted. For the coarse sanding, he usually uses an electric sander and a coarse grade of sandpaper. If small nicks and scratches in the surface cannot be removed by sanding, he fills them with automobile-body putty; when the putty has dried and hardened, he sands it down even with the surface. He uses masking tape and paper to cover areas not to be painted.

The paint that he puts on first is called a primer because "prime" used to mean first. Now, because we have lost sight of this old meaning, we think of a priming coat as a coat that "prepares" the surface for the finishing coats of paint.

Before painting the parts of an automobile that have been repaired, the painter may have to mix paints in order to match the color of the car. Before applying the paint, he adjusts the nozzle of the spray gun according to the kind of lacquer or enamel he is using and, if necessary, adjusts the air pressure regulator for the right amount of pressure. He must be skillful in handling the spray gun so that he can apply the paint evenly, rapidly, and throughly. To speed up the drying, he may place the freshly painted car under heat lamps or in a special infra red oven. After the paint dries, the painter or his helper may polish the newly painted surface to bring out its shine. The paint usually will not be waxed until some time later, so that the paint will have had time to harden or "cure."

78.1

EXERCISES

Write sentences using the following words with the silent b.

1. (comb)______________________________
2. (lamb)______________________________
3. (bomber)______________________________
4. (numb)______________________________
5. (climb)______________________________
6. (plumber)______________________________
7. (crumb)______________________________
8. (dumb)______________________________
9. (debt)______________________________
10. (bomb)______________________________
11. (thumb)______________________________
12. (doubt)______________________________
13. (plumb)______________________________
14. (tomb)______________________________
15. (limb)______________________________

LESSON 79.0 gh and ph as the f sound

79.1 gh as the f sound

tough
trough
laughter
rough
slough
laughing
enough
draught
rougher
laugh
roughest
cough
toughest

79.2 ph as the f sound

phone
Phillips 66
alphabet
atmosphere
hyphen
phrase
telephone
sulphur
photostat
photograph
orphan
phantom
telegraph
graphite
saxophone
elephant
pheasant
Phyllis
Ralph
camphor
autograph
nephew
pamphlet
hemisphere
Philip
Triumph
trophy
phonograph
pharmacy
graph

79.3 gh and ph spellings

1. These spellings come in some of our most familiar words, and you soon get to know them like the faces of old friends. Once you have learned the simple and regular ways to spell hundreds of words, as you have done by now, you don't have much trouble with these strange ones. In fact, most people quickly become so used to them that they are the easiest words to recognize.

2. The gh spelling for the f sound is in very old English words that used to be pronounced differently. Everybody knows what tough, rough, and enough mean. Laugh and cough are just as familiar to us all. A trough is a narrow, usually v-shaped bin or container (you would also call it a receptacle) for holding food for animals. The horse eats his hay from a trough in his stall. The cow eats her fodder from a trough. A trough can also be a long container for a liquid to move through. Water might be sent through a trough in a mine, or in an irrigation project. A gutter along the edge of a roof is a trough. The low water between two waves is called the trough of the wave. A short trough could hold water in a farm; it would be the drinking trough for the animals, and it would be fed by a pump or a faucet.

3. Now, slough is not common. It means a skin or covering. Since a snake sheds his skin every year, he is said to slough it off, and it is itself called his slough. Of course, slough is also spelled sluff. If you play bridge, you know about sluffing off losing cards. Another word where the spelling has nearly always changed is draft. We have draft horses, which means horses that pull, and draft beer, which is beer that is pulled up from a barrel. Draft is actually an old past tense of the verb draw. So draft beer is, you might say, drawn up from the cellar; a draft of beer is a drink of beer, that is, the amount drawn; and a draft horse draws his load. This word draft used always to be spelled draught, and you will still see it spelled that way pretty often. The game of checkers used to be called draughts, spelled the old way. A draft of air is always spelled the new way. It means air that is drawn through an opening. A draftsman is one who draws, with a completely different meaning. He is also spelled draughtsman, though not so very often today. The draft of a ship is the amount of water it draws, or requires to float. When you draw up the first form of a letter or any document or agreement, you call it the first draft.

4. The ph spelling for the f sound comes from ancient Greece, and words with that spelling came into English from the Greek many many years ago. Graph in Greek means to write. Graphite, which we now use as a lubricant, used to be used in pencils, for writing. If automobile means self-running, then autograph means self-writing: your autograph is your signature. Geography, which today means our knowledge of the earth's surface, comes from Greek words meaning earth (ge) plus graph; that is, it was not writing but drawing pictures of the earth, or making maps. As an adjective, a graphic description is a description so powerful that it is like a picture. Telegraph comes from the Greek tele, meaning far, plus

graph. So when you send a telegraph you are "writing far." And when you telephone, you are "speaking far," for the word phone means voice in Greek. We have a great many words with phone in them, always having something to do with speech or speaking or sound. If you put phone and graph together, you get phonograph. How? Well, the voice sounds were written down on the disc or record by the tiny ups and downs in the groove; these, as you know, send vibrations back through the pick-up and make the sound again when they are played on the record-player. The saxophone, a musical instrument, was named after A. J. Sax, who invented it.

5. The Greek word for light is photos, which we have in photograph. A photograph is a picture written with light, through a camera, of course, and the photographer is the person who writes with light, or, more exactly, draws with light. Another form of the Greek word photos is phos, and it comes in many words also having something to do with light. For example, phosphorus (it means light-bringing) is a metal that burns when we put it in water. Anything that is phosphorescent glows or shines with light. A great many other words, most of them not very common, have this Greek word in them.

6. A hemisphere is a half of a sphere, or a half of a round object like an orange or a balloon or the earth. Either half of the earth is a hemisphere. The combustion chamber in an automobile engine, where the gas is compressed and the ignition takes place is a flattened hemisphere. In some engines it is very shallow and is not really a hemisphere at all. In others it is higher and really is a hemisphere.

7. Some very common words with the ph spelling are alphabet, elephant, nephew, phrase, pamphlet, Ralph, camphor, and Triumph. A triumph is a victory, for which we sometimes get a trophy, that is, a cup

or medal or other prize. It is not surprising to see an automobile named a Triumph. Nobody would call his car a loser, although he might call it a lemon. Then it would not have a capital L. Today we like to name cars after animals. There is the Mustang and the Maverick, both horses; the Impala, an African deer that can jump a very long way; the Cougar, whom you know from the pictures; the Barracuda, a fierce and very fast fish; and the British Jaguar, who is a distant cousin of the Cougar. The Dodge Charger ought to be some sort of animal -- most likely a horse, since a war horse used to be called a charger.

79.4 Training and Qualifications of Auto Body Painters

There are about 30,000 automobile painters employed in the United States, and the number promises to increase with the increase of automobiles. They work in repair shops that specialize in auto-body repair; in paint shops; and in the service departments of automobile and truck dealers. Some are employed by organizations that maintain and repair their own fleets of motor vehicles, such as trucking companies and bus lines.

Most automobile painters begin as helpers and learn their skills by working along with experienced painters for several years. The beginner usually works at such tasks as removing auto trim, cleaning and rough sanding surfaces to be painted, and polishing the painted surface after it has dried. As they gain experience, helpers learn to use the spray gun, to apply primer coats, and to paint small areas. It usually takes three to four years of on-the-job training for a helper to become a fully qualified automobile painter.

A number of auto painters learn their trade through a regular apprenticeship program, which is generally accompanied by classroom training. Such a program takes the learner about three years.

Young men considering work as painters should have good health, keen eyesight, a good sense of color, and a steady hand. Automobile painters are exposed to fumes from paint and paint mixers and cleaners. In most shops, however, the painting is performed in special ventilated booths. In shops not having such booths, painters are furnished with protective masks that cover the nose and mouth. Painters must be limber because they have to bend and stoop at their work; but no more than average physical strength is needed.

Skilled automobile painters employed by dealers earned about $4.50 an hour for straight time work, in 1968. Skilled painters earn twice or three times as much as helpers. Salary arrangements are like those of mechanics.

79.5 EXERCISES

Write sentences about work in automotive jobs using these gh and ph words.

1. (tough)____
2. (rough)____
3. (laugh)____
4. (Phillips 66)____________________________________
5. (telephone)_____________________________________
6. (phantom)______________________________________
7. (Phyllis)______________________________________
8. (Triumph)______________________________________

LESSON 80.0 ch -- sounds of k and sh

80.1 ch as the k sound

- echo
- stomach
- chromium
- Christmas
- chord
- ache
- chemist
- anchor
- Christ
- mechanic
- chorus
- chemistry
- scheme
- christen
- mechanism
- school
- schedule
- schooner
- scholar
- mechanical
- chrome
- chemical
- orchestra
- chasm
- chaos

80.2 ch as the sh sound

- Chicago
- Chevelle
- Charlotte
- Chevvy
- machine
- parachute
- Chevron
- chandelier
- Chevrolet
- brochure

80.3 Working With Machinery

Working with machinery demands mechanical skills. Polishing chrome requires patience and physical strength. Sailing a schooner requires some knowledge of geography, the ability to decipher charts, and perhaps some skill at using an echo sounder. This is an electronic instrument that bounces a sound off the bottom of the sea and tells the sailor how deep the water is. Sound travels a little faster through water than it travels through the atmosphere, but the radar knows how to make the right adjustment. And it will work whether the boat is moving or anchored. The same sort of mechanism can send a radio wave to the moon and back. It will tell us exactly how far away the moon is. As a matter of fact, it takes a radar wave about two-and-one half seconds to go to the moon and return.

Jimmy's Scheme

Jimmy stayed home from auto school because he had a stomach ache. His brother thought he would get behind in his schedule of work, even though he was a good scholar. But he said that his hardest subject was oil chemistry, and he did not have a class on that day. Nevertheless, his brother thought his staying home might be a scheme, although he did not know what he might be scheming about. Later in the day, when Jimmy sort of casually remarked that there was a movie he specially wanted to see, his brother had his answer, which came like the final chord in a piece of music, putting all the parts together.

Charlotte and Her Chevelle

Charlotte drove her Chevelle into the Chevron station in Chicago. With the attendant she discussed the chemical in a new additive that was supposed to reduce engine wear. "Will this chemical add to the pollution?" she asked. The attendant assured her that the Chevron company had a chemist who had tested for such dangers. He agreed that the atmosphere was already polluted and that we must do everything possible to reduce it. He showed her a pamphlet from the local anti-pollution society describing the steps that had to be taken and the schedule of activities that were planned for the program. Charlotte drove her Chevelle out of the Chevron station somewhat comforted.

LESSON 81.0 sh and zh sounds -- various spellings

81.1 The sh sound

pressure	fission	emission	expression	permission	sugar
partial	patient	vitiate	negotiate	cautious	differential
special	facial	social	racial	superficial	efficient
delicious	suspicious	precious	gracious	vicious	anxious

81.2 The zh sound

visual	measure	pleasure	treasure	usually	vision

LESSON 82.0 gu as g

guard	guaranty	guess	guide	guilt
guardian		guest	guise	guilty
			beguile	guitar
			disguise	

LESSON 83.0 silent t

whistle	listen	often	nestle	bristle
rustle	wrestle	glisten	thistle	trestle
bustle	jostle			

LESSON 84.0 ain (ĭn) only when unaccented

certain	mountain	captain	fountain	villain

LESSON 85.0 ine, ile, and ive endings

85.1 When there is no accent on the last syllable the i is short i (ĭ).

ine

discipline	masculine	feminine	paraffine

ile

futile	fertile	missile	fragile	tactile

ive

active	attentive	dectective	positive	native
passive	massive	expensive	responsive	captive

85.2 The accent is on the last syllable and i has the long e sound. This may be a French pronunciation.

gasoline
machine

LESSON 86.0 ui pronounced ĭ

build
builder
building
built
circuit

LESSON 87.0 sc as s

descent
disciple
scene
scimitar
descend
discipline
scenery
scissors
ascent
fascinate
scenic
scythe
ascend
science
scent
ascertain
scientific
scientist

Auto Diagnosis

Auto diagnosis is a relatively new automotive field. The specialist in this area works with highly specialized and complex instruments such as the Oscilloscope or "engine analyzer" to make a series of scientific tests on the condition of the engine, ignition system, transmission, and differential.

The first step in his work with a car left for diagnosis may be to drive it up on roller drums of a "roadability machine," where the car will in effect run without moving. Then he will connect the test equipment, set the car in motion, and run through the gear speeds at increasing speeds. He will listen for unusual noises that will tell him of defects or troubles in the motor, transmission, or rear end. Then he will read the gauges on his instrument panel and the various pieces of test equipment that he has fastened to the motor and other parts of the car. Here he will, among other things, be able to determine the power that the engine develops at various speeds.

After this, he will screw a gauge into a spark plug opening, going from one cylinder to the next in succession, in order to determine the compression in each cylinder while the motor is running. Then he may cut off the motor and have the car driven by the dynamometer motor, which of course is electric. The gauges will now tell him the power that is needed to run the motor. At this time he will listen for internal noises, which he can hear better because there are no gasoline explosions occurring. He will listen for such noises as piston slap, knocks, taps and gear noises. He will have more special instruments that will enable him to locate difficulties exactly.

He will check shock absorbers, springs, steering mechanisms, oil seals, lights, and general conditions of the car visually. He may also use instruments to check brakes and wheel alignments at this time.

After the inspection and diagnosis, he will write a report on a standard form, showing just what ought to be done to restore the automobile to proper operating condition. The next step is usually a conference with the owner of the car, at which the repairs and price will be settled before any work is done. Then the diagnostic man may make the repairs or, in a much larger shop, turn the work over to a mechanic.

Work Conditions

Auto diagnosis specialists usually work with a minimum of supervision. The job is a relatively new one. There are new auto diagnosis shops opening up all over the country, which are exclusively diagnostic and tune-up shops. The technician also works in new car agencies, repair garages, automotive departments of retail stores, diagnostic centers, and with organizations that operate automobile fleets, including taxi companies.

This job is one of the highest paid jobs in the Service Department. Salaries begin between $110 and $130 per week. Most diagnosis specialists work 40 hours per week, but they may work more during busy periods. Diagnosis shops are clean, well-ventilated, lighted, and heated.

For this job a man should have a solid foundation of mechanical knowledge and then take the special training offered by the manufacturers of various brands of testing equipment. It will take a man from four to eight years to become a highly qualified diagnostician, for he must have a strong background in the principles of auto mechanics and the operation of all types of vehicles. He should have normal vision and hearing, manual and finger dexterity, be able to work with accuracy, and have a valid driver's license.

The Air Conditioning and Light Repair Mechanic

This is a special job that combines skills often used for separate positions. The air conditioning and light repair mechanic inspects the engine, cleans and adjusts spark plugs and distributor points, adjusts the valve tappets, checks and adjusts the entire electrical system, and adjusts the carburetor. He also knows how the power from the engine is used to run the refrigerating unit in the air-conditioning system -- and how to service all the parts of this system, including the compressor, the condenser, the cooling coil and the pressure lines and blowers.

His responsibility is to tune the automotive vehicle's engine to top performance in power and efficiency. He removes the spark plugs, using a socket wrench, and tests them, using a spark plug tester. He cleans the electrodes by pushing them into a sand-blasting machine that blasts all the carbon off. Then he sets the spark gap accurately with a feeler gauge. If necessary he replaces the worn plugs with new ones. Then he inspects the distributor breaker points for wear and pits, again using a feeler gauge. He resets the points or replaces them with a new set. Sometimes he may file the points down to make a better contact, rather than replacing them with new ones.

He inspects the ignition timing, using a timing device and light, and adjusts the timing by using handtools, either wrenches or screwdrivers. He adjusts the carburetor needle setting, using handtools, and verifies his adjustment by using special instruments, such as a fuel analyzer, a vacuum gauge, an oscilloscope, and a tachometer.

He sets the valve tappets to the correct clearance, using his feeler gauge or a dial indicator that comes with a special instrument. He replaces defective coils, condensers, and electrical connectors. He removes and cleans the fuel pump, examines the battery connections and electrical charging and starting circuits, greasing and tightening the battery connections where he finds this operation necessary.

He adjusts or replaces the fan belt, and the belts operating the fuel and water pumps, if the automobile has them. He may tune the vehicle while the engine runs, using the roller system and the dynamometer.

He installs and repairs air-conditioning units. He bolts the compressor to the engine block and installs a driving pulley on the front end of the crankshaft. He places a fan belt on the pulley, adjusts the tension, and then tightens the bolts to hold it firmly in place. He bolts an evaporator unit under the dashboard or in the trunk of the car. He welds mounting brackets to the automobile frame, drills holes through the interior panels, threads hoses through these holes, and connects them to the compressor, evaporator, and cool-air outlet. He fills the compressor with the refrigerant fluid and starts the unit to observe its operation. For this, he measures the compressor pressure to determine the efficiency of the compressor, using a special gauge for the purpose. He listens carefully for any sign of malfunction. If he hears a sound that indicates a faulty unit, he removes it and replaces it with a good one.

He takes faulty units from cars and takes them apart to find the exact source of the trouble. Then he replaces the faulty part or makes the adjustment that will put the unit back in proper service.

Experienced tune-up and air-conditioning men work with only general supervision. The employment opportunities for this type of work are excellent. More and more automobiles contain air-conditioning units, which must be brought in for servicing at fairly regular intervals, and since the skills that go with this work are not as widespread as some others, that have been in demand for longer periods of time, the pay is likely to be higher. The air-conditioning specialist works indoors in clean, well lighted and well-ventilated shops. He has a responsible job and he enjoys his work because he is an expert on one of the latest inventions that make automobiles comfortable and pleasant. His work is respected and praised.

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